**Section 920.170 Monitoring Wells**

This Section shall apply to all monitoring wells, except those wells installed to monitor chemicals leaking from underground storage tanks which are installed within the excavation made for the installation of the underground storage tank.

a) Casing. All monitoring wells shall have casing which meets the requirements of Section 920.90(a), except where the design specifications require the use of another material. Threaded joints shall be required where plastic casing is used. Casing must be clean, free of rust, grease, oil or contaminants and be composed of materials, including but not limited to steel and plastic, that will not affect the quality of the water sample. All casing shall be watertight. The casing shall be centered in the borehole, be free of any obstructions and allow sampling devices to be lowered into the well.

b) Well Screen. All monitoring well screens shall be constructed of non-corrosive and non-reactive material. All well screens shall be permanently joined to the well casing and shall be centered in the borehole.

c) Filter Packs. All monitoring wells installed in unconsolidated material shall be constructed with filter packs. When used, the filter pack shall be the only material in contact with the well screen.

1) The filter pack shall consist of sand or gravel. The sand or gravel used for filter packs shall have an average specific gravity of not less than 2.50. The filter pack material shall be sized to match the screen slot size and the surrounding formation to prevent the formation materials from entering the screen. The sand or gravel shall be free of clay, dust and organic matter. Crushed limestone, dolomite or any material containing clay or any other material that will adversely affect the performance of the monitoring well shall not be used as filter pack.

2) Installation. The filter pack shall extend a maximum of 6 inches below the bottom of the screen to 2 feet above the top of the screen. For water table observation wells constructed in areas where the depth to the water table is less than 5 feet, the required filter pack height above the top of the well screen may be reduced to 6 inches to allow for the required amount of annular space sealant to be placed.

d) Grouting Requirements. All materials and procedures used in the installation of annular seals for groundwater monitoring wells shall meet the requirements of this Section. The annular sealing material above the filter pack shall prevent the migration of fluids from the surface and between aquifers. Sealing material shall be chemically compatible with anticipated contaminants.

1) Annular Space Seal. All monitoring wells shall be installed with an annular space seal. The annular seal shall extend from the top of the filter pack to the surface.

2) Above Ground Surface Completion. Where the monitoring well does not terminate flush with the ground surface in accordance with Section 920.170(d)(3), the casing shall extend at least 8 inches above the ground surface. The top of the casing shall be provided with a locking cap. If the monitoring well is located in a floodplain, the cap shall be watertight. Protective devices, such as rings of brightly colored posts around the well, shall be installed in areas where the casing is likely to be struck by farm vehicles or by individuals who are unaware of the existence of the well.

3) Ground Surface Completion. Monitoring well casing may terminate at the ground surface provided a flush-mounted well completion pipe is installed over the casing. The flush-mounted completion pipe shall consist of a metal casing at least four inches larger in diameter than the well casing. Monitoring wells terminating at the surface may be allowed only in areas traveled by vehicles. The flush-mounted well completion pipe shall have a water tight seal and the annular opening around the well completion pipe shall be grouted. The well casing shall be sealed with a watertight locking cap.

e) Drilling Methods and Fluids. The drilling method shall introduce the least possible amount of foreign material into the borehole, produce the least possible disturbance to the formation and permit the proper construction and development of the required diameter well. Water from a source free of bacterial and chemical contamination shall be used in the drilling fluid mixture.

f) Disposal and Decontamination.

1) All drill cuttings and fluids and surge and wash waters from borehole and monitoring well construction and development shall be disposed of in a manner which will not result in contamination of the immediate area or result in a hazard to individuals who may come in contact with these materials.

2) All monitoring well construction equipment shall be decontaminated by washing and triple rinsing or high pressure heat cleaning to prevent cross-contamination of monitoring wells or in accordance with design specifications, whichever is more stringent.

g) Special Circumstances and Exceptions.

1) The Department may require more restrictive or alternative well material, assembly or installation if the contaminant concentrations or geologic setting require alternative construction.

2) Variances to the requirements of this subsection may be approved by the Department prior to installation or abandonment. A variance request shall state the reasons why compliance with the rule is impractical or impossible. The Department shall approve a variance when it can be shown that the particular contaminant or drilling method requires alternative materials or procedures to safeguard against contamination of the groundwater.

h) Abandonment or Decommissioning of Monitoring Wells. All abandoned monitoring wells shall be sealed in accordance with Section 920.120.

i) Reporting. Within 30 days after a monitoring well has been constructed or abandoned, the owner, designer or consulting firm shall submit a report of construction or abandonment to the Department on such forms as are prescribed and furnished by the Department.

(Source: Amended at 18 Ill. Reg. 17684, effective November 30, 1994)