

ILLINOIS REGISTER

DEPARTMENT OF PUBLIC HEALTH

DRAFT NOTICE OF ADOPTED AMENDMENTS

TITLE 77: PUBLIC HEALTH
CHAPTER I: DEPARTMENT OF PUBLIC HEALTH
SUBCHAPTER r: WATER AND SEWAGE

PART 920
WATER WELL CONSTRUCTION CODE

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Section 920.10 Definitions

"Abandoned Well" means a water or monitoring well that is no longer used to supply water, or that is in such a state of disrepair that the well or boring has the potential for transmitting contaminants into an aquifer or otherwise threatens the public health or safety.

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"Act" means the Illinois Water Well Construction Code [415 ILCS 30].

"Annular Space" means the opening between a well-hole excavation and the well casing or between a casing pipe and a liner pipe.

"Aquifer" means saturated (with groundwater) soils and geologic materials which are sufficiently permeable to readily yield economically useful quantities of water to wells, springs, or streams under ordinary hydraulic gradients. (Section 3(b) of the Illinois Groundwater Protection Act [415 ILCS 55/3(b)])

"Bentonite Grout" means a manufactured grout product that is a mixture of sodium bentonite and water mixed at the manufacturer's recommended ratio; a mixture of granulated sodium bentonite and water that consists of a minimum of 20 percent solid bentonite clay and water that is equivalent to 9.4 pounds/gallon; or sodium bentonite in the granulated or chip form. All bentonite products shall comply with National Sanitation Foundation (NSF) International requirements.

"Borehole" also known as "drill hole" means an excavation that is drilled, cored, driven, dug or otherwise constructed that penetrates an aquifer or that may degrade the quality of the aquifer.

"Cement" means a mixture consisting of cement, sand and water in the proportion of one bag of cement (94 pounds) and an equal volume of dry sand to not more than 6 gallons of clean water.

"Chemical Injection System" means any device or combination of devices having hose, pipe or other methods of conveyance that connect directly to any water well through which a mixture of water, pesticides and fertilizers is mixed or is drawn and applied to land, crops or plants at agricultural, nursery, turf, golf course or greenhouse sites.

"Closed Loop Well" means a sealed, watertight loop of pipe buried outside of a building foundation intended to re-circulate a liquid solution through a heat exchanger but is limited to the construction of the borehole and the grouting of the borehole and does not include the piping and appurtenances used in any other capacity. "Closed loop well" does not include any horizontal closed loop well systems where grouting is not necessary by law or standard industry practice.

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(Section 3(h) of the Act) "Closed Loop Heat Pump Well" means the same as "Closed Loop Well".

"Closed Loop Well Contractor" means any person who installs closed loop wells for another person. "Closed loop well contractor" does not include the employee of a closed loop contractor. (Section 3(j) of the Act)

"Closed Loop Well System" means a clustered group of closed loop wells that serve the same facility.

"Community Water System" means a public water system which serves at least 15 service connections used by residents or regularly serves at least 25 residents for at least 60 days per year. (Section 9(a)(1) of the Illinois Groundwater Protection Act)

"Consolidated Formation" means a geological formation that is firm rock referred to as bedrock.

"Construction" means all acts necessary to obtaining ground water by any method, including without limitation the location of and the excavation for the well, but not including prospecting, surveying or other acts preparatory to those activities, nor the installation of pumps and pumping equipment. (Section 3(a) of the Act)

"Contaminant" means any physical, chemical, biological, or radiological substance or matter in water. (Section 9(a)(2) of the Illinois Groundwater Protection Act .

"Crevice, Consolidated Formation" is a consolidated formation characterized by fractures.

"Department" means the Illinois Department of Public Health.

"Detention Pond" is an engineered structure designed to store storm water from a rain event. The elevation of the outlet structure designed to meet the release rate requirement is equivalent to the lowest elevation of the pond.

"Driven Water Well" means a well constructed by joining a drive point with

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lengths of pipe and then driving or jetting the assembly into the ground with percussion equipment or by hand.

"Established Ground Surface" means the elevation of the ground surface at the site of the well.

"Finished Ground Surface" means the final or permanent elevation of the ground surface at the site of the well.

"Flowing Artesian Well" means a well in which the water from the confined aquifer rises above the finished ground surface.

"Ground Water" or "Groundwater" means water of underground aquifers, streams, channels, artesian basins, reservoirs, lakes and other water under the surface of the ground, whether percolating or otherwise. (Section 2(2) of the Illinois Water Well and Pump Installation Contractor's License Act)

"Horizontal Closed Loop Well Systems" means any open cut excavation where a watertight loop of pipe is buried outside of a building foundation that is intended to re-circulate a liquid solution through a heat exchanger.

"Mechanically Driven" means a procedure by which a casing is fitted with a drive shoe and driven with a force sufficient to firmly seat the casing in rock or to the desired depth in unconsolidated formations.

"Modification" means the alteration of the structure of an existing water well, including, but not limited to, deepening, elimination of a buried suction line, installation of a liner, replacing, repairing or extending casing, or replacement of a well screen. Pertaining to closed loop wells, "modification" also means any alteration to the construction of the borehole of an existing closed loop well, including, but not limited to, regrouting and installation of additional boreholes.

"Monitoring Well" means a water well intended for the purpose of determining groundwater quality or quantity.

"Neat Cement Grout" means a mixture consisting of one bag of cement (94 pounds) to not more than 6 gallons of clean water. Bentonite or similar material may be added up to 6 percent by dry weight to increase fluidity or to control

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shrinkage.

"Non-Community Water System" means a public water system which is not a community water system, and has at least 15 service connections used by nonresidents, or regularly serves 25 or more nonresident individuals daily for at least 60 days per year. (Section 9(a)(4) of the Illinois Groundwater Protection Act)

"Pitless Adapter Unit" means a factory assembled device consisting of a pitless well adapter, a mechanism that attaches to the well casing, and a well casing riser in a single unit, for the purpose of preventing contaminants from entering the well.

"Pitless Well Adapter" means an assembly of parts that will permit water to pass through the wall of the well casing or extension of the wall; provides access to the well and to the parts of the water system within the well; and provides for the transportation of the water and the protection of the well and water in the well, from surface or near surface contamination. Parts or appurtenances to a pitless well adapter include, but are not limited to, the vent, the device or devices on or in the wall of the casing, and the cap or cover on top of the casing or casing extension.

"Potable" means generally fit for human consumption in accordance with accepted water supply principles and practices. (Section 3(h) of the Illinois Groundwater Protection Act)

"Potential Primary Source" means any unit at a facility or site not currently subject to a removal or remedial action which:

is utilized for the treatment, storage, or disposal of any hazardous or special waste (as defined in Section 3 of the Environmental Protection Act) not generated at the site; or

is utilized for the disposal of municipal waste not generated at the site, other than landscape waste (as defined in Section 3 of the Environmental Protection Act) and construction and demolition debris; or

is utilized for the landfilling, land treating, surface impounding or piling

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of any hazardous or special waste (as defined in Section 3 of the Environmental Protection Act) that is generated on the site or at other sites owned, controlled or operated by the same person; or

stores or accumulates at any time more than 75,000 pounds above ground, or more than 7,500 pounds below ground, of any hazardous substances. (Section 3.345 of the Environmental Protection Act)

"Potential Route" means abandoned and improperly plugged wells of all kinds (i.e., those wells not plugged in accordance with this Part), drainage wells, all injection wells, including closed-loop heat pump wells, and any excavation for the discovery, development or production of stone, sand or gravel. This term does not include closed-loop heat pump wells using United States Pharmacopeia (USP) food grade propylene glycol. (Section 3.350 of the Environmental Protection Act)

"Potential Secondary Source" means any unit at a facility or a site not currently subject to a removal or remedial action, other than a potential primary source, which:

is utilized for the landfilling, land treating, or surface impounding of waste that is generated on the site or at other sites owned, controlled or operated by the same person, other than livestock and landscape waste, and construction and demolition debris; or

stores or accumulates at any time more than 25,000 but not more than 75,000 pounds above ground, or more than 2,500 but not more than 7,500 pounds below ground, of any hazardous substances; or

stores or accumulates at any time more than 25,000 gallons above ground, or more than 500 gallons below ground, of petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance; or

stores or accumulates pesticides, fertilizers, or road oils for purposes of commercial application or for distribution to retail sales outlets; or stores or accumulates at any time more than 50,000 pounds of any de-icing agent; or

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is utilized for handling livestock waste or for treating domestic wastewaters other than private sewage disposal systems as defined in the Private Sewage Disposal Licensing Act. (Section 3.355 of the Environmental Protection Act)

"Pressure Grouting" means the placement of grout by a method using positive pressure.

"Private Water System" means any supply which provides water for drinking, culinary, and sanitary purposes and serves an owner-occupied single family dwelling. (Section 9(a)(5) of the Illinois Groundwater Protection Act)

"Public Water System" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if the system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. A public water system is either a community water system (CWS) or a non-community water system (non-CWS). The term "public water system" includes any collection, treatment, storage or distribution facilities under control of the operator of such system and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. (Section 9(a)(6) of the Illinois Groundwater Protection Act)

"Pumping Water Level" means the depth to of the water surface in a well from the ground surface, top of casing or other established datum when water is discharged by pumping.

"Retention Pond" is an engineered structure designed to store storm water from a rain event. The elevation of the outlet structure designed to meet the release rate requirement is higher than the elevation of the pond base.

"Semi-Private Water System" means a water supply which is not a public water system, yet which serves a segment of the public other than an owner-occupied single family dwelling. (Section 9(a)(7) of the Illinois Groundwater Protection Act)

"Site" means any location, place, tract of land, and facilities, including but not limited to buildings, and improvements used for purposes subject to regulation

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under the Environmental Protection Act. (Section 3.460 of the Environmental Protection Act)

"Storm Sewer" means a sewer that is used for conveying rainwater, surface water, groundwater, subsurface water, site drainage, condensate, cooling water or other similar liquids (excluding treated or untreated domestic sewage) to a point of discharge.

"Thermal Grout" is a Department approved grout specifically developed to enhance the heat transfer in a closed loop well. Department approved closed loop well grouts shall have permeability no greater than 1×10^{-7} centimeters per second and all bentonite products shall comply with National Sanitation Foundation (NSF) International requirements. The Department will maintain a list of approved closed loop well grouts on its website at www.idph.org.

"Tremie Method" means pumping grout through a pipe that is inserted into the annular space to fill the space from the bottom upward to the ground surface or to the point of pitless adapter attachment.

"Unconsolidated Formation" means a geological formation above bedrock, such as sand or gravel, that is caving in nature.

"Undesirable Water" means water that contains contamination that exceeds Class I Groundwater Standards adopted in the Groundwater Quality Standards Code (35 Ill. Adm. Code 620, Subpart B).

"Unit" means any device, mechanism, equipment, or area (exclusive of land utilized only for agricultural production). (Section 3.515 of the Environmental Protection Act)

"Water-Bearing Formation" means any geologic formation that contains water.

"Water Well" means any excavation that is drilled, cored, bored, washed, driven, dug, jetted or otherwise constructed when the intended use of such excavation is for the location, diversion, artificial recharge, or acquisition of ground water, but such term does not include an excavation made for the purpose of obtaining or prospecting for oil, natural gas, minerals or products of mining or quarrying or for inserting media to repressure an oil or natural gas bearing formation or for

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storing petroleum, natural gas or other products or for observation or any other purpose in connection with the development or operation of a gas storage project. (Section 3(e) of the Act"

"Well" means a bored, drilled or driven shaft, or dug hole, the depth of which is greater than the largest surface dimension. (Section 3.555 of the Environmental Protection Act)

"Well Cap" means that portion of the pitless well adapter used to enclose the atmospheric termination of the casing, which shall overlap the top of the casing extension with a downward flange.

"Well Seal" means an arrangement or device used to establish a watertight closure at the junction of a well pump or piping with the well casing cover at the upper terminal of the well, the purpose of which is to prevent contaminated water or other material from entering the well.

(Source: Amended at 39 Ill. Reg. _____, effective _____)

Section 920. Table C Minimal Lateral Distances in Feet Between Water Wells, Closed-Loop Wells, and Sources of Contamination

<u>SOURCES OF CONTAMINATION OR EXISTING WATER WELL</u>	<u>MINIMUM LATERAL DISTANCES FOR CLAY AND LOAM SOILS (FEET)</u>	
	<u>WATER WELL</u>	<u>CLOSED LOOP WELL</u>
<u>Cesspool</u>	<u>150</u>	<u>150</u>
<u>Closed Loop Well¹</u>	<u>200</u>	<u>NA</u>
<u>Water Well¹</u>	<u>NA</u>	<u>200</u>
<u>Water Well (when the owner of the closed loop well and a water well serving a private water supply is the same)¹</u>	<u>N/A</u>	<u>75</u>
<u>Leaching Pit</u>	<u>100</u>	<u>100</u>
<u>Pit Privy</u>	<u>75</u>	<u>75</u>
<u>Subsurface Seepage System, Distribution Box, Sand Filter, Waste Stabilization Pond, Effluent Receiving Trench</u>	<u>75</u>	<u>75</u>
<u>Manure Pile</u>	<u>75</u>	<u>75</u>

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<u>Septic Tank, Aerobic Treatment Plant, Surface Discharge Effluent Line, Treated Effluent Discharge Point</u>	<u>50</u>	<u>50</u>
<u>Barnyard or Animal Confinement Lot</u>	<u>50</u>	<u>50</u>
<u>Footing Drains (No connection to a sewer or sump handling sewage is allowed.)</u>	<u>10</u>	<u>10²</u>
<u>Pump House Floor Drain</u>	<u>2</u>	<u>2²</u>
<u>Pit, Crawl Space or Basement</u>	<u>5</u>	<u>5²</u>
<u>Lake, Pond or Stream</u>	<u>25</u>	<u>25³</u>
<u>Potential Primary Source, Potential Secondary Source, or Potential Route</u>	<u>200</u>	<u>200</u>
<u>Potential Primary Source, Potential Secondary Source, or Potential Route (where the owner of the source or route, and a water well serving a private water supply or closed loop well, is the same)</u>	<u>75</u>	<u>75</u>
<u>Abandoned Wells</u>	<u>200</u>	<u>200</u>
<u>Sewers (Sanitary or Combined)</u>	<u>50⁴</u>	<u>50^{4,5}</u>
<u>Storm Sewers</u>	<u>10</u>	<u>10⁶</u>

¹ A closed loop well utilizing USP food grade propylene glycol may be located to within 25 feet of a water well.

² These setbacks do not apply when the closed loop well is installed prior to the construction of the building.

³ The 25-foot separation distance from a pond does not apply to a closed loop well when:

- 1) The borehole is grouted the same day that it is constructed; and
- 2) The top 20 feet of the borehole is bored to a diameter at least 3 inches greater than the total diameter of the heat exchanger; and
- 3) The enlarged top 20 feet of the borehole is grouted with bentonite chips manufactured for well sealing within 24 hours after the construction of the borehole.

⁴ A water well or closed loop well may be located to within 10 feet of a sewer provided that the sewer consists of cast iron pipe with watertight mechanical joints or rubber gasket sealed

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joints that meet ASTM Standard C564-11, SDR 26 PVC pipe or schedule 40 PVC pipe or heavier with solvent welded watertight joints or elastomeric seals (gaskets) used for push-on joints that meet ASTM Standard F477-10.

⁵ If the sewer pipe material is unknown, the 50- foot separation distance may be reduced to 25 feet if the following conditions are met:

- 1) The borehole is grouted the same day that it is constructed; and
- 2) The top 20 feet of the borehole is bored to a diameter at least 3 inches greater than the total diameter of the heat exchanger; and
- 3) The enlarged top 20 feet of the borehole is grouted with bentonite chips manufactured for well sealing within 24 hours after the construction of the borehole.

⁶ The 10-foot separation distance for a storm sewer does not apply to a closed loop well when:

- 1) The borehole is grouted the same day that it is constructed; and
- 2) The top 20 feet of the borehole is bored to a diameter at least 3 inches greater than the total diameter of the heat exchanger; and
- 3) The enlarged top 20 feet of the borehole is grouted with bentonite chips manufactured for well sealing within 24 hours after the construction of the borehole.

SOURCES OF CONTAMINATION OR EXISTING WATER WELL	MINIMUM LATERAL DISTANCES FOR CLAY AND LOAM SOILS (FEET)	
	WATER WELL	CLOSED LOOP WELL
Cesspool	150	150
Closed Loop Well [†]	200	NA
Water Well [†]	NA	200
Water Well (when the owner of the closed loop well and a water well serving a private water supply is the same) [†]	75	75
Leaching Pit	100	100
Pit Privy	75	75

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Subsurface Seepage System, Distribution Box, Sand Filter, Waste Stabilization Pond, Effluent Receiving Trench	75	75
Manure Pile	75	75
Septic Tank, Aerobic Treatment Plant, Surface Discharge Effluent Line, Treated Effluent Discharge Point	50	50
Barnyard or Animal Confinement Lot	50	50
Footing Drains (No connection to a sewer or sump handling sewage is allowed.)	10	10 ²
Pump House Floor Drain	2	2 ²
Pit, Crawl Space or Basement	5	5 ²
Lake, Pond or Stream	25	25 ³
Potential Primary Source, Potential Secondary Source, or Potential Route	200	200
Potential Primary Source, Potential Secondary Source, or Potential Route (where the owner of the source or route, and a water well serving a private water supply or closed loop well, is the same)	75	75
Abandoned Wells	200	200
Sewers (Storm, Sanitary or Combined) ⁴	50 ⁵	50 ⁵

¹—A closed loop well utilizing USP food grade propylene glycol may be located to within 25 feet of a water well.

²—These setbacks do not apply when the closed loop well is installed prior to the construction of the building.

³—The 25 feet separation distance for a retention or detention pond does not apply to a closed loop well when:

- 1) The borehole is grouted the same day the borehole is constructed;
- 2) The borehole is grouted to the surface; and
- 3) The borehole is topped off, between 24 and 48 hours after the borehole is grouted, with a bentonite chip product manufactured for water well sealing.

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- ⁴~~A water well or closed loop well may be located to within 10 feet of a sewer provided the sewer consists of cast iron pipe with watertight mechanical joints or rubber gasket sealed joints that meet ASTM Standard C564-11, SDR 26 PVC pipe or schedule 40 PVC pipe or heavier with solvent welded watertight joints or elastomeric seals (gaskets) used for push-on joints that meet ASTM Standard F477-10.~~
- ⁵~~If the sewer pipe material is unknown, the 50 feet separation distance may be reduced based upon the site specific conditions. Both the water well permit application and the closed loop well permit application will have a section to identify the site specific conditions for reducing the 50 feet separation distance.~~

(Source: Amended at 39 Ill. Reg. _____ effective _____)