DEPARTMENT OF PUBLIC HEALTH

NOTICE OF ADOPTED AMENDMENTS

1) Heading of the Part: Illinois Water Well Construction Code

2) Code Citation: 77 Ill. Adm. Code 920

3)

Section Numbers:	Adopted Action:
920.10	Amended
920.15	Amended
920.20	Amended
920.30	Amended
920.40	Amended
920.50	Amended
920.60	Amended
920.70	Amended
920.90	Amended
920.120	Amended
920.130	Amended
920.140	Amended
920.150	Amended
920.160	Amended
920.180	Amended
920.200	New
920.210	New
920.220	New
920.230	New
920.240	New
920.250	New
920.Illustration A	Amended
920.Illustration E	Amended
920.Illustration H	Amended
920.Table C	New

4) Statutory Authority: Illinois Water Well Construction Code [415 ILCS 30]

5) Effective Date of Amendments:

6) Does this rulemaking contain an automatic repeal date? No

7) Does this rulemaking contain incorporations by reference? Yes

8) A copy of the adopted amendments, including any material incorporated by reference, is on file in the agency's principal office and is available for public inspection.

9) Notice of Proposed Amendments Published in Illinois Register: December 14, 2012; 36 Ill. Reg. 17308

10) Has JCAR issued a Statement of Objection to these amendments? No

11) Difference(s) between proposal and final version:

The following changes were made in response to comments received during the first notice or public comment period:

1. In Section 920.10, in the definition of "*Closed Loop Well*" after "Act)" add " Closed Loop Heat Pump Well" means the same as " Closed Loop Well".

2. In Section 920.10, in the definition of "Construction" delete the underlined language and strike out the definition of "Construction". Add *"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 thereto, nor the installation of pumps and pumping equipment.* (Section 3(a) of the Act)

3. In Section 920.10, delete the definitions of "Ground Heat Exchange Borehole" and "Ground Heat Exchange System".

4. In Section 920.10, in the definition of *"Ground Water"* add or "Groundwater".

5. In Section 920.10, in the definition of "Horizontal Closed Loop Well System" change "System" to "Systems".

6. In Section 920.10, in the definition of "Modification" strike "Modification means".

7. In Section 920.10, in the definition of "Modification" delete underlined language and add " '*Modification' means any change, replacement or other alteration of any water well which shall be contrary to* this Part. (Section 3d of the Act)".

8. In Section 920.10, in the definitions add "Modify" means to change, replace or alter *any water well* in a manner that *is contrary to* this Part."

9. In Section 920.10, in the definition of “Pressure Grouting” delete "to displace drilling fluids".

10. In Section 920.10, in the definition of “Water Well” delete underlined language and strike out the definition of “Water Well” and add “ *"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 oil or natural gas bearing formation or for 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)”

11. In Section 920.15(a)(2) and 920.90(a)(2) delete “F480-06be1” and replace with “F480-12”.

12. In Section 920.15 b, add “9) Private Sewage Disposal Code (77 Ill. Adm. Code 905)”.

13. In Section 920.120(a)(2) add “ all of the following conditions exist” after “if”.

14. In Section 920.130 a, strike "construction" and add "start of work".

15. Delete Section 920.150(c).

16. In Section 920.160(c), delete the underlined language and remove strikeouts from the existing language.

17. In Section 920.180(a), delete "have permeability from (1×10^{-9}) to(1×10^{-7}) centimeters per second" and add “have permeability no greater than $1x10^{-7}$ centimeters per second".

18. In Section 920.180, delete all underlined language and strike out all existing language in subsections (b)-(g).

19. In Section 920.200(b), delete “, approved local health department or approved unit of local government”.

20. Delete Section 920.200(b)(6), and renumber 920.200(b)(7) to “6)”.

21. In Section 920.210(b)(1), delete ", installation of vertical closed loop well piping,".

22. In Section 920.240(a)(3), delete ", Coolants".

23. In Section 920. Table C, delete the row "Vertical – USP Food Grade Propylene Glycol".

24. In Section 920. Table C, delete the row "Vertical – Other Authorized Coolants".

25. In Section 920.Table C, delete the column under the heading "USP FOOD GRADE PROPYLENE GLYCOL".

26. In Section 920. Table C, delete the heading "USP FOOD GRADE PROPYLENE GLYCOL".

27. In Section 920.Table C, change the heading from "PROPOSED CLOSED LOOP WELL" to "CLOSED LOOP WELL".

28. In Section 920.Table C, delete the heading "OTHER AUTHORIZED COOLANTS".

28. In Section 920.Table C, in the row Closed Loop Well add "200" in the first column and "N/A" in the second column.

29. In Section 920.Table C, in the Water Well (where the owner of the closed loop well and a water well serving a private water supply is the same) row, change "N/A" to "75".

30. In Section 920.Table C, in the Footing Drains (No connection to a sewer or sump handling sewage is allowed.) row change the "N/A" to "10".

31. In Section 920.Table C, in the Pit, Crawl Space or Basement row change the "N/A" to "5".

32. In Section 920.Table C, in the Pump House Floor Drain row change the "N/A" to "2".

33. In Section 920.Table C, after "Sewers" add "(Storm, Sanitary or Combined)".

34. In Section 920.Table C, after "Closed Loop Well" add "[1]".

35. In Section 920.Table C, after "Water Well" add "[1]".

36. In Section 920.Table C, after "Septic Tank" add " , Aerobic Treatment Plant, Surface Discharge Effluent Line, Treated Effluent Discharge Point".

37. In Section 920.Table C, remove "Subsurface Seepage Pipe/Tile From Private Sewage Systems" and add Subsurface Seepage System, Distribution Box, Sand Filter, Waste Stabilization Pond, Effluent Receiving Trench [2]".

38. In Section 920.Table C, at the end of the table add a row "In Relation to Buildings[4]".

39. In Section 920.Table C, add the footnotes," [1] A closed loop well utilizing USP food grade propylene glycol may be located to within 75 feet of a water well."

"[2] Water wells and closed loop wells shall be separated from all other system components for a private sewage disposal system consistently with Part 905 Private Sewage Disposal Code for Wells."

40. In Section 920.Table C, renumber the footnote by deleting "[1]" and adding "[3]"

41. In Section 920.Table C. add the footnote, [4] Water wells and closed loop wells shall be located so that the centerline of the well extended vertically will clear any projection from the building by not less than 2 feet."

The following changes were made in response to comments and suggestions of JCAR:

1. In the definition of "Construction", change *"thereto"* to "to those activities".

2. In Section 920.10 add the definition, "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.".

4. In Section 920.10 delete the definition of "Environmental Protection Act"

5. In Section 920.10 delete the definition of *"Modification".*

6. In Section 920.10 in the definition of "~~Modification~~", reinstate "Modification means"; strike out the existing definition language; and add "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."

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7. In Section 920.10, add "'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.".

8. In Section 920.10, add "'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 x 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.".

9. In Section 920.15(a)(1), after "Foundation" add "International".

10. In Section 920.15(a)(1), change "2010a" to "2012".

11. In Section920.180 delete "Department approved closed loop well grouts shall meet the requirements for NSF/ANSI 61-2010a and shall have a permeability no greater than 1 x 10^{-7} centimeters per second.".

12. In Section 920.Table C:

In the 4th row, 1st column, 3rd line, after the closing parenthesis, add "1".
In the 7th row, 1st column, 3rd line, change "Trench^{2}" to "Trench".
In the 11th row, 3rd column, change "10" to "10^{2}"
In the 12th row, 3rd column, change "2." to "2^{2}".
In the 13th row, 3rd column, change "" to "5^{2}".
In the 14th row, 3rd column, change "25" to "25^{3}".
In the 18th row:
1st column, change ".l" to " ".
2nd and 3rd columns, change "50" to "50^{5}".
Delete the 19th row.

13. After 920.Table C. Change the footnotes to:

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

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

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.

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..

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.".

In addition, various typographical, grammatical, and form changes were made in response to the comments from JCAR.

12) Have all the changes agreed upon by the agency and JCAR been made as indicated in the agreements issued by JCAR? Yes

13) Will this rulemaking replace an emergency rule currently in effect? No

14) Are there any amendments pending on this Part? No

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15) Summary and Purpose of Rulemaking: Amendments to this Part clarify existing provisions and add new requirements to implement Public Act 97-0363, which amended the Water Well and Pump Installation Contractor's License Act and the Illinois Water Well Construction Code to include new provisions and amend existing provisions governing closed loop wells and to add requirements for closed loop well contractor certification. Existing definitions in the rules are clarified and new definitions are being added. Section 920.15 is being amended to update incorporated and referenced materials. Additional amendments delete existing requirements for minimal lateral separation distances, which will be incorporated into the new Section 920.Table C. Amendments clarify the requirements for the installation of plastic well casing and grouting procedures; establish requirements for bored well construction materials; and allow water well contractors to prepare a well for sealing before notifying the Department or local health department as to the date that the well would be sealed. Sealing of a non-producing well is clarified to protect the water bearing formation. Other amendments establish requirements for approved local health departments having agent agreements with the Department. Existing requirements for closed loop wells are clarified and new Sections are added. Section 920.Table C combines the setback requirements between closed loop wells, water wells, and sources of contamination, and establishes setback requirements between sources of contamination and closed-loop wells. Amendments to Section 920.Illustrations A, E, and H bring them in line with other proposed changes to the rules.

16) Information and questions regarding these adopted amendments shall be directed to:

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The full text of the adopted amendments begins on the next page:

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF ADOPTED AMENDMENTS

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

PART 920
~~ILLINOIS~~ WATER WELL CONSTRUCTION CODE

Section

	Oversized Drill Hole
920.ILLUSTRATION F	Creviced Formations: Earth Cover Over 30 Feet Thick − Mechanically Driven Casing
920.ILLUSTRATION G	Bored or Dug Well − Well Not Finished With Buried Slab
920.ILLUSTRATION H	Bored or Dug Well − Buried Slab Construction
920.ILLUSTRATION I	Installation of a Driven Well
920.ILLUSTRATION J	Sealing an Abandoned Well − Extending into a Creviced Formation
920.ILLUSTRATION K	Sealing an Abandoned Dug or Bored Well
920.ILLUSTRATION L	Sealing an Abandoned Well Extending into More Than One Water Bearing Formation
920.ILLUSTRATION M	Sealing an Abandoned Buried Slab Bored Well
920.TABLE A	Steel Casing and Liner Pipe Weights and Dimensions
920.TABLE B	Plastic Casing and Liner Pipe Specifications
920.TABLE C	Minimal Lateral Distances in Feet Between Water Wells, Closed Loop Wells, and Sources of Contamination

AUTHORITY: Implementing and authorized by the Illinois Water Well Construction Code [415 ILCS 30].

SOURCE: Adopted September 12, 1973; amended at 2 Ill. Reg. 42, p.35, effective October 16, 1978; rules repealed, new rules adopted and codified at 7 Ill. Reg. 9633, effective August 1, 1983; amended at 12 Ill. Reg. 2990, effective January 13, 1988; amended at 13 Ill. Reg. 11796, effective July 1, 1989; amended at 14 Ill. Reg. 228, effective January 1, 1990; amended at 14 Ill. Reg. 14871, effective September 1, 1990; amended at 15 Ill. Reg. 18188, effective January 1, 1992; amended at 18 Ill. Reg. 17684, effective November 30, 1994; amended at 22 Ill. Reg. 3973, effective April 1, 1998; amended at 24 Ill. Reg. 11934, effective August 1, 2000; amended at 37 Ill. Reg. _____, effective _____.

Section 920.10 Definitions

"Abandoned Well" means a water or monitoring well thatwhich is no longer used to supply water, or thatwhich 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.

"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)])

~~"Aquifer" means a water bearing formation that transmits water in sufficient quantity to supply a well.~~

"Bentonite Grout" means a manufactured grout product that~~which~~ is a mixture of sodium bentonite and water mixed at the manufacturer's recommended ratio; a mixture of granulated sodium bentonite and water that~~which~~ consists of a minimum of 20 percent solid~~% solids~~ bentonite clay and water that is equivalent to 9.4 pounds/gallon; ~~a mixture of granulated sodium bentonite and clean drilling mud and water, weighing a maximum of 8.6 pounds/gallon, which consists of a minimum of 20% solids bentonite clay and clean drilling mud equivalent to 9.6 pounds/gallon;~~ or sodium bentonite in the granulated or chip form. All bentonite products shall comply with National Sanitation Foundation (NSF) International requirements.

"Borehole~~Boring~~" also known as "drill hole" means an excavation that is drilled, cored, driven, dug~~,~~ or otherwise constructed that~~which~~ penetrates an aquifer or that~~which~~ 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~~which~~ connect directly to any water well through which a mixture of water, pesticides and fertilizers is~~are~~ mixed or is~~are~~ drawn and applied to land, crops~~, and/~~ 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.

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

~~"Closed Loop Well" means a sealed, watertight loop of pipe buried outside of a building foundation which is intended to recirculate a liquid solution through a heat exchanger.~~

"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) ~~[415 ILCS 55/9(a)(1)]).~~

"Consolidated Formation" means a geological formation that~~which~~ is firm ~~such as~~ 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)~~"Construction" means all acts necessary to obtaining ground water by wells, including excavation of the well, but excluding the installation of permanent pumps and pumping equipment.~~

"Contaminant" means any physical, chemical, biological, or radiological substance or matter in water. (Section 9(a)(2) of the Illinois Groundwater Protection Act ~~[415 ILCS 55/9(a)(2)])~~.

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

~~"Environmental Protection Act" means the Environmental Protection Act [415 ILCS 5].~~

"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.~~any change, replacement, or other alteration of a water well. This includes, but is not limited to deepening of a well, replacing or repairing a casing,~~

~~repair or replacement of well screen, installation of a pitless adapter and any other changes of a well structure.~~

"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~~six~~ gallons of clean water. Bentonite~~Additives such as bentonite or aquajel~~ or similar material~~materials~~ may be added up to 6 percent~~%~~ by dry weight to increase fluidity or to control 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 ~~[415 ILCS 55/9(a)(4)]~~).

"Pitless Adapter Unit" means a factory assembled device consisting of a pitless well adapter, a mechanism that~~which~~ 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~~which~~ will permit water to pass through the wall of the well casing or extension of the wall~~thereof~~; 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~~therein~~, 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~~device(s)~~ 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 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~~3.59~~ of the Environmental Protection Act ~~[415 ILCS 5/3.59]~~)

"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*

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 ~~[225 ILCS 225]~~. (Section 3.355~~3.60~~ of the Environmental Protection Act ~~[415 ILCS 5/3.60]~~)

~~*"Potential Route" means abandoned and improperly plugged wells of all kinds,* (i.e., those wells not plugged in accordance with the provisions of 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.* (Section 3.58 of the Environmental Protection Act [415 ILCS 5/3.58])~~

"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 ~~[415 ILCS 55/9(a)(5)]~~)

"Public Water System" means a system for the provision to the public of ~~*piped*~~ *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 ~~[415 ILCS 55/9(a)(6)]~~)

"Pumping Water Level" means the depth to~~elevation~~ 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 ~~[415 ILCS 55/9(a)(7)]~~)

"Site" means any location, place, tract of land, and facilities, including but not limited to buildings, and improvements used for purposes subject to regulation under the Environmental Protection Act. (Section 3.460~~3.43~~ of the Environmental Protection Act ~~[415 ILCS 5/3.43]~~)

"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 x 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.

Field Code Changed

"Tremie Method" means ~~an industry method of applying grout to the annular space by~~ pumping grout through a pipe that is inserted into the annular space to fill the space ~~with grout~~ from the bottom upward to the ground surface~~until the annular opening is filled~~ or to the point of pitless adapter attachment.

"Unconsolidated Formation" means a geological formation above bedrock, such as sand or gravel, that~~which~~ 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~~3.62~~ of the Environmental Protection Act ~~[415 ILCS 5/3.62]~~)

"Water-Bearing Formation" means any geologic formation that~~which~~ contains

water.

~~"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.~~

"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 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"~~"Water Well" means any excavation that is drilled, cored, bored, washed, driven, dug, jetted or otherwise constructed when the intended use of thesuch excavation is for the location, diversion, artificial re-charge, or acquisition of ground water, except monitoring wells.~~

"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 37 Ill. Reg. _____, effective _____)

Section 920.15 Incorporated and~~or~~ Referenced Materials

The following rules~~federal and State regulations~~, standards~~,~~ and statutes are incorporated or referenced in ~~various Sections of~~ this Part.

a) The following standards are incorporated by reference:

~~1)~~ ~~NSF International, Standard 56, Pitless Well Adapters (November 1992) and published by:~~

~~NSF International~~
~~3475 Plymouth Road, P.O. Box 1468~~
~~Ann Arbor, Michigan 48106~~

1)~~2)~~ National Sanitation Foundation International/American National Standards Institute (NSF/ANSI)~~NSF International~~, Standard NSF/ANSI 14-2010a~~1990~~, Plastic Piping System Components and Related Materials, and Standard NSF/ANSI 61-2012, Drinking Water System Components – Health Effects, ~~and~~ published by:

NSF International
789 N. Dixboro Road
P.O. Box 130140
~~3475 Plymouth Road, P.O. Box 1468~~
Ann Arbor, Michigan 48113-0140~~48106~~

Referenced in Section 920.90

2)~~3)~~ American Society for Testing and Materials (ASTM) International required standards ASTM A53/A53M-10, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless (2010); ASTM A589/A589M-06, Standard Specification for Seamless and Welded Carbon Steel Water-Well Pipe (2006); ASTM F480-12, Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80 (2006); ASTM D3035-10, Standard Specification for Polyethylene (PE Plastic Pipe (DR-PR)) Based on Controlled Outside Diameter (2010); ASTM C564-11, Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings (2011); and ASTM F477-10, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe (2010); published by~~are listed under Sections 920.90 and 920.180. List of approved steel and plastic well casing standards may be obtained from~~:

American Society for Testing and Materials International
100 Barr Harbor Drive
P.O. Box C700

West Conshohocken, Pennsylvania 19428-2959
~~1916 Race Street~~
~~Philadelphia, PA 19103~~

Referenced in Sections 920.90 and 920.180

3)~~4)~~ Underwriter's Laboratories, Inc., ~~Standard for Safety~~ UL 1995 (2005)~~(1990)~~, UL Standard for Safety Heating and Cooling Equipment, ~~and~~ published by:

Underwriter's Laboratories, Inc.
333 Pfingster Road
Northbrook, Illinois 60062-2096

Referenced in Section 920.90

4) American Petroleum Institute API SPEC 5L-2011, Specification for Line Pipe, published by:

American Petroleum Institute
1220 L Street, NW
Washington, D.C. 20005-4070

Referenced in Section 920.90

b) The following statutes and rules are referenced:

1) Environmental Protection Act, Title IV, Public Water Supplies [415 ILCS 5/Title IV]~~)~~

2) Illinois Water Well and Pump Installation Contractor's License Act [225 ILCS 345]

3) Private Sewage Disposal Licensing Act [225 ILCS 225]

4) Illinois Groundwater Protection Act [415 ILCS 55]

5) Groundwater Quality Standards Code (35 Ill. Adm. Code 620, Subpart B)

6) Practice and Procedure in Administrative Hearings (77 Ill. Adm. Code 100)

7) Drinking Water Systems Code (77 Ill. Adm. Code 900)

8) Illinois Water Well Pump Installation Code (77 Ill. Adm. Code 925)

9) Private Sewage Disposal Code (77 Ill. Adm. Code 905)

c) All incorporations by reference of ~~federal regulations and~~ the standards of nationally recognized organizations refer to the ~~regulations and~~ standards on the date specified and do not include any amendments or editions~~additions or deletions~~ subsequent to the date specified.

d) All materials incorporated by reference are available for inspection and copying at the Department's Central Office, Division of Environmental Health, 525 West Jefferson ~~–~~ ~~–~~Third Floor, Springfield, Illinois 62761.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.20 Scope

This~~The~~ Part ~~hereby prescribed,~~ provides minimum standards for the location, construction and modification of water wells, monitoring wells and closed loop wells that~~which~~ are not otherwise subject to regulation under the Environmental Protection Act, Title IV, Public Water Supplies ~~(Ill. Rev. Stat. 1991, ch. 111 1/2, pars. 1014-1019) [415 ILCS 5/Title IV]~~. No~~After the effective date of adoption of this Part, no~~ water well, monitoring well or closed loop well as defined in this Part~~above~~ shall be constructed or modified contrary to the provisions of this Part.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.30 General Requirements

a) Authorized Constructor. Water wells subject to this Part shall be constructed only by persons having a valid license under the Illinois Water Well and Pump Installation Contractor's License Act ~~[225 ILCS 345]~~ unless exempt under ~~provisions of~~ that Act.

b) Reports. Within 30 days after a water well has been constructed or deepened, the contractor shall submit a report of construction to the Department, an approved

unit of local government or local health department (see Sections 920.150 and 920.160) on ~~such~~ forms ~~as are~~ prescribed and furnished by the Department.

c) Variance~~.~~

1) If conditions exist at a proposed installation site that~~which~~ preclude compliance with ~~the requirements of~~ this Part, a variance shall be requested and shall be approved before well construction begins. The contractor may request a variance by submitting to the Department or an approved unit of local government or~~a~~ local health department, ~~approved under Section 920.150 and 920.160,~~ a written request outlining a specific proposal to be used in lieu of compliance with this Part. The request shall include a plot plan of the property, showing lot size, the location of sewers, septic tanks, buildings, seepage fields, and other sources of contamination on the property and adjacent property, with distances shown to the proposed well. A description of geological and soil conditions shall also be included. The Department or approved local health department will~~shall~~ approve the variance if the proposal is in accordance with accepted public health and sanitary engineering principles and practices, and if the resulting water well installation can be expected to provide a continuously safe and sanitary water supply. The Department or approved local health department will notify the applicant in writing of its decision either to grant or deny the variance.

2) Examples of location problems that would preclude compliance with this Part would be the proposed location of a well too close to septic tanks, buildings, sewer lines, or barnyards.

3) Examples of public health and engineering principles that would be considered in issuing a variance would be ground surface conditions, depth of the water table, the location of sources of contamination, the ability of the existing soil to remove ~~-~~bacteria~~,~~ and geologic conditions.

4) After a well has been drilled for which a variance has been issued, the contractor shall submit two~~2~~ water samples to the Department laboratory for analysis. The first sample shall be submitted within 30 days after the pump is installed and operated; the second sample shall be submitted within 60 days after start-up of the pump, but not less than 30 days after collection of the first sample.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.40 Design Factors

The design of each well shall include the following:

a) Natural Protection. Location of the well shall include useutilization of every natural protection available to promote sanitary conditions.

b) GeologicGeological Formations. The well construction shall be adapted to the geologic formations and groundwaterground water conditions at the site, but shall comply with the requirements in this Part.

c) Undesirable GeologicGeological Formations. Water--bearing formations shall be excluded by installing casing or a liner and properly sealing when thesuch formations contain undesirable water. When a contaminated formation is to be excluded, the liner shallmust be grouted in place, in accordance with Section 920.90(h), from 10 feet below the bottom of the contaminated formation to at least 10 feet above the top of the contaminated formation. When multiple water-bearing formations of different static water levels are penetrated in the construction of a water well and the lower water--bearing formation has sufficient yield for the water well, the upper water-bearing formations shall be excluded by installing casing or a liner and properly sealing to prevent the dewatering of the upper water-bearing formations.

d) Capacity. The well shall be capable of producingCapability of the well to produce as much of the desired water quantity as the aquifer or aquifers can safely furnish.

e) Durability. Construction methods and materials shall provide a durable well capable of maintaining safe water and protecting the aquifer.

f) Pitless Well Adapters. No well casing shall be cut off or cut into below ground surface except to install a pitless well adapter below the frost level. Pitless well adapters or pitless units installed on plastic well casing shall be pressurized at the point of attachment with the well casing, unless the pitless unit is solvent welded onto the plastic casing and the riser casing of the pitless unit is plastic. Pitless well adapters installed on steel well casing shall be pressurized at the point of attachment with the well casing, unless the pitless unit is threaded or welded onto the well casing. The annular opening between the well casing and the well

boreholebore hole or any excavation made to install the pitless adapter shall be filled with earth to minimize settling and shall be mounded to provide drainage away from the well. The contractor installing the pitless well adaptor shall be responsible for the installation of the earth backfill. Pitless well adapters shall comply with the requirements of the NSF International Standard Number 56 entitled "Pitless Well Adapters" and shall be tested and approved as meeting this standard by Allied Laboratories, 716 North Iowa Avenue, Villa Park, Illinois, and shall be listed by the Department as meeting this standard. A list of approved pitless well adapters will be periodically updated and a copy of this list may be obtained from the Department.

g) Well Caps. There shall be no openings through the well cap except for a factory-installed vent, air line connection, and power supply wiring unless a proposal is submitted to and approved by the Department. The proposal shallmust show that any entrance into the well cap is watertight. In addition, well caps shall:

1) Prevent surface water from entering the water supply;.

2) Be secured in position;.

3) Be removable only with tools; and only.

4) Be resistant to weathering and corrosion.

h) Chemical Injection System. Where a chemical injection system is directly connected to a water well used for irrigation, a backflow device shall be installed in accordance with Section 925.40 of the Illinois Water Well Pump Installation Code (77 Ill. Adm. Code 925).

i) Vents. Vent piping shall be of adequate size to allow equalization of air pressure in the well. For wells that are greater than 4four inches in diameter, the vent shall be not less than ½one half inch in diameter. Vent openings shall be located soin such a manner as to prevent contamination of the well and shall be reasonably tamper prooftamper proof. The vent opening shall be turned down, secured in position, and screened with not less than 24-mesh durable screen or filtered soin such a manner as to prevent the entry of insects. The vent opening shall terminate at least 8 inches above finished grade, or 24 inches above maximum high water level in areas where flooding occurs. Wells shall be properly ventedParticular attention shall be given to proper venting of wells in areas where toxic or inflammable gases are known to be a characteristic of the water. If determined

~~that~~ either of these types of gases are present, all vents located in buildings shall be extended to discharge outside of the building at a height where the vent will not be a hazard. Venting is required on all wells except driven water wells and flowing wells.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.50 Location

a) General. In establishing the location of a well, the constructor shall consider~~give consideration to~~ sources of contamination that~~which~~ exist on or adjacent to the location of the well~~premises where the well is to be located~~. As far as possible, the well shall be located on ground that~~which~~ is higher than sources of contamination and shall have ready access for repairs, maintenance, treatment and inspection. All water wells, except monitoring wells, shall be located in accordance with the minimum distances specified in Table C~~in subsection (b)~~ and shall be constructed in accordance with ~~the requirements of~~ this Part.

b) Relation to Sources of Contamination. Determination of minimum lateral distances to locate a well from potential sources of contamination~~,~~ involves evaluation of the character and location of the sources of contamination, types of geologic formations present, depth to the aquifer, direction of groundwater~~ground water~~ flow, effect on the groundwater~~ground water~~ movement by well pumping, and possibilities of flooding of the site by surface waters. Based on practice and experience, accepted minimum lateral distances for some common sources of pollution with respect to a well are established in Table C.~~have been established. The lack of specific distances for other possible sources of contamination such as streams, refuse disposal sites, excavations, waste treatment facilities, buried oil and gasoline storage tanks, improperly constructed wells and cisterns, does not minimize their potential hazards. These~~ Other soil conditions or other sources of contamination shall~~ must~~ be evaluated in each particular situation and a distance arrived at based on the pertinent facts. The Department may be called on for assistance in determining a proper distance.

~~1) The following minimum lateral distances shall apply for the common sources of contamination listed:~~

~~LATERAL DISTANCES SOURCES OF FOR CLAY AND~~

~~CONTAMINATION~~	~~LOAM SOILS~~
~~Cess Pools~~	~~150 Feet~~
~~Closed-Loop Wells~~	~~200 Feet~~
~~Closed-Loop Wells (Private Well Only; where the owner of both the private water well and the closed loop heat pump well is the same)~~	~~75 Feet~~
~~Leaching Pit~~	~~100 Feet~~
~~Pit Privy~~	~~75 Feet~~
~~Subsurface Seepage Pipe/Tile From Private Sewage Systems~~	~~75 Feet~~
~~Manure Piles~~	~~75 Feet~~
~~Septic Tank~~	~~50 Feet~~
~~Barnyard or Animal Confinement Lot~~	~~50 Feet~~
~~Sewers. A well may be located to within 10 feet of a sewer provided the sewer consists of cast iron pipe with water tight mechanical joints or rubber~~	

~~gasket sealed joints which meet ASTM Standard C564-88, or schedule 40 PVC pipe or heavier with solvent welded water tight joints or elastomeric seals (gaskets) used for push-on joints which meet ASTM Standard F477-76~~	~~50 Feet~~
~~Footing Drains (No connection to a sewer or a sump handling sewage)~~	~~10 Feet~~
~~Pump House Floor Drain~~	~~2 Feet~~
~~Pits, Crawl Spaces or Basements~~	~~5 Feet~~
~~Lakes, Ponds, Streams or Cisterns~~	~~25 Feet~~
~~Potential Primary Source, Potential Secondary Source, or Potential Route~~	~~200 Feet~~
~~Potential Primary Source, Potential Secondary Source, or Potential Route, where the owner of the source or~~	

~~route is the same as the private well~~ ~~75 Feet~~

~~Abandoned Wells~~ ~~200 Feet~~

~~2)~~ ~~When the upper formations are more pervious, the lateral distances shall be increased (i.e., double the distance for highly pervious gravel formations). (See subsections (b)(3) and (4) for additional requirements.)~~

1)~~3)~~ Prohibitions. No~~Beginning January 1, 1990, no~~ new water well may be located within 200 feet of any potential primary or potential secondary source or any potential route, unless some other distance is allowed or required in Table C~~subsection (b)(1)~~. If~~Where~~ the owner is the same for both the well to serve the private water system and a potential secondary source or a potential route, the well shall be no closer than 75 feet from the potential route or potential secondary source, unless some other distance is allowed or required in Table C~~subsection (b)(1)~~.

2)~~4)~~ If~~Where~~ the owner of a water well is the same owner of a potential primary source, potential secondary source, or ~~a~~ potential route, the Department will~~shall~~ allow a variance to the minimum separation distances required between a water well and a potential primary source, potential secondary source, or ~~a~~ potential route if the owner of~~a demonstration is provided by the owner of~~ the potable water well demonstrates that applicable protective measures will be used~~utilized~~ to minimize the potential for contamination of the well, and if the resulting well installation can be expected to provide a continuously safe and sanitary water supply in compliance with the Act, this Part and the Department's Drinking Water Systems Code ~~(77 Ill. Adm. Code 900)~~. Protective~~Applicable protective~~ measures may include ensuring that sources of contamination are down grade from the water source or isolation of the potential source of contamination so~~in such a manner~~ as to prevent a route of contamination of the groundwater~~ground water~~, or isolating the potential source of contamination to prevent accidental introduction of contaminants into groundwater~~ground water~~. To~~In order to~~ obtain a variance, the owner shall~~must~~ comply with Section 920.30(c). (See Section 6(a) of the Act.)~~.~~

c) Floodwater~~Flood Water~~. Locations subject to flooding shall be avoided. If no reasonable alternate site exists, wells may be constructed in flood zones

if~~providing~~ special protective construction is included. The casing of the well shall terminate not less than 2~~two~~ feet above the maximum known flood water elevation.

d) Relation to Building. With respect to buildings, pits~~,~~ and basements, the location of a well shall be as follows:

1) Adjacent to Building. When a well must be located adjacent to a building, it shall be ~~so~~ located so that the center line of the well extended vertically will clear any projection from the building by not less than 2~~two~~ feet.

2) Pits and Basements. New wells shall not be constructed in pits or basements.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.60 Drilled Wells in Unconsolidated Formations

a) General. Unconsolidated formations such as sand and gravel may extend to or near the ground surface. Generally, however, they lie below the ground surface at varying depths and are covered by an overburden of earth. The kind, nature and depth of the overburden are factors in determining how a well shall be constructed.

b) Unconsolidated Formations. When wells are constructed in unconsolidated formations, a casing shall be installed the entire depth of the formation. Wells constructed in unconsolidated formations shall have a minimum of 20 feet of permanent casing.

1) ~~When wells are constructed in unconsolidated formations, a casing shall be installed the entire depth of the formation. Such wells shall have a minimum of 20 feet of permanent casing.~~ When an oversized drill hole is constructed for the installation of the casing, the diameter of the drill hole shall be a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater. If plastic well casing is installed, it shall be installed as required in Section 920.90(g). After the well casing is installed, the annular space shall be grouted as provided in Section 920.90(h). The annular space is from within a maximum of 10 feet of the top of the screen to finished ground surface. The tremie pipe shall be installed to the bottom of the annular space. No device shall be installed

to prevent the tremie pipe from being installed into the annular space or to prevent the grout from filling the annular space. Excessive development and washing shall not be used to induce collapse of the borehole wall or to reduce the amount of open annular space. ~~The tremie pipe shall be installed when the casing is installed. The casing shall be grouted to a minimum depth of 60 feet, or within 10 feet above the top of the screen when the top of the screen is less than 70 feet below ground level. All wells with less than 25 feet of casing shall be grouted for a minimum of 15 feet below ground level. If plastic well casing is installed, it shall be installed as required in Section 920.90(g). After the casing is installed, the annular space shall be grouted as provided in Section 920.90(h).~~ (See Illustration A.)

2) When the casing is installed by mechanically driving the casing, an oversized hole shall be constructed to a depth of at least 10 but not more than 20 feet to allow removal of the drive nipple and installation of a joint of casing. While the casing is being driven, the bottom of the oversized hole shall be filled with granulated bentonite or natural clay mixture. After the casing is installed, either the open annular space that exists around the well casing shall be ~~either~~ grouted as required in Section 920.90(h) or, when the diameter of the oversized hole is a minimum of 3 inches greater than the outer diameter of the casing or coupling, the open annular space that exists around the well casing can be filled with bentonite or natural clay. (See Illustration B.)

c) Gravel Pack Construction. When an oversized~~over-sized~~ drill hole is constructed to permit the placement of a gravel pack around the well screen, the diameter of the drill hole shall be a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater. The annular opening between the casing and drill hole shall be grouted in accordance with Section 920.90(h). If a permanent outer casing is installed, it shall extend to a depth of at least 20 feet and the annular opening between the drill hole and the outer casing shall be grouted in accordance with Section 920.90(h). The annular opening between inner and outer casings shall be sealed at the top of the casing. The seal shall be made in such a manner as to prevent water or contaminants from entering the annular space between the inner and outer casing. If plastic well casing is installed, it shall be installed as required in Section 920.90(g). (See Illustration C.)

1) All gravel placed in the well shall be clean and shall be~~,~~ washed and disinfected prior to placement, or provisions shall be made for disinfection

in place.

2) Gravel refill pipes may be installed if they terminate above ground surface and are provided with watertight caps.

3) Wells designed for placement of an artificial gravel pack shall be provided with an adequate screen having openings sized on the basis of the grain size of the gravel. The well shall be developed to ensure~~insure~~ free entry of water without sediment.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.70 Drilled Well Construction in Consolidated Formations

a) Drift or Earth Cover Less Than 30 Feet in Thickness

1) The well casing shall extend to a depth of at least 40 feet below finished ground surface. The diameter of the drill hole shall be a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater. The annular space shall be pressure grouted as provided for in Section 920.90(h). If plastic casing is installed, it shall be installed in accordance with Section 920.90(g). (See Illustration D.)

2) If a well is drilled to obtain water below the upper bedrock formation, it shall comply with subsection (a)(1) and the well casing shall be seated firmly in rock. When a liner is installed through the casing, the annular space between the casing and the liner shall be pressure grouted in accordance with Section 920.90(h). If the upper bedrock formation is a water-bearing formation, the liner shall be installed in accordance with Section 920.40(c).

~~a) Creviced Formations - Drift or Earth Cover Less Than 30 Feet. A creviced or cracked formation, which is the upper bedrock formation and is overlain by a mantle of earth having a thickness less than 30 feet, shall be used as a source of groundwater supply when constructed by one of the following methods:~~

~~1) Where the drift or earth cover is less than 30 feet in thickness, the well casing shall extend to a depth of at least 40 feet below ground level. The diameter of the drill hole shall be a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater. The~~

~~annular space shall be pressure grouted as provided for in Section 920.90(h). If plastic casing is installed, it shall be installed in accordance with Section 920.90(g).~~

~~2)~~ ~~Where the well is drilled to obtain water from a lower formation the casing shall extend at least through the creviced formation and be seated in firm rock. The diameter of the drill hole through the creviced formation shall be a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater. The annular space shall be pressure grouted as provided in Section 920.90(h). When an outer casing is left in place, the annular space between the casings shall be pressure grouted and the annular opening around the outer casing shall be grouted in accordance with Section 920.90(h). If plastic casing is installed, it shall be installed in accordance with Section 920.90(g). (See Illustration D.)~~

b) Drift or Earth Cover Over 30 Feet in Thickness~~.~~

1) When an oversized drill hole is constructed for the installation of the casing and the annular space is to be grouted through a tremie pipe installed in the annular space, the diameter of the drill hole shall be a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater. After the casing is installed, the annular space shall be grouted as provided for in Section 920.90(h). The annular space shall be grouted from the bottom of the casing to ground level. The tremie pipe shall be installed to the bottom of the annular space. No device shall be installed to prevent the tremie pipe from being installed into the annular space or to prevent the grout from filling the annular space.~~The tremie pipe shall be installed when the casing is installed and casing grouted to a minimum depth of 60 feet. When the casing is less than 60 feet, the entire length of casing shall be grouted. When grout is pumped into the annular space through the inside of the casing, the diameter of the drill hole shall be a minimum of 2 inches greater than the outer diameter of the casing or coupling, whichever is greater. If plastic well casing is installed, it shall be installed as required in Section 920.90(g). After the casing is installed, the annular space shall be grouted as provided for in Section 920.90(h).~~ (See Illustration E.)

2) When grout is pumped into the annular space through the inside of the casing, the diameter of the drill hole shall be a minimum of 2 inches greater than the outer diameter of the casing or coupling, whichever is

greater. The entire length of casing shall be grouted as provided in Section 920.90(h). If plastic well casing is installed, it shall be installed as required in Section 920.90(g).

32) When the casing is installed by mechanically driving the casing, an oversized hole shall be constructed to a depth of at least 10 but not more than 20 feet to allow the removal of the drive nipple and installation of a joint of casing. While the casing is being driven, the bottom of the oversized hole shall be filled with granulated bentonite or natural clay mixture. After the casing is installed, either the annular space that exists around the well casing shall be either grouted as required in Section 920.90(h) or, when the diameter of the oversized hole is a minimum of 3 inches greater than the outer diameter of the casing or coupling, whichever is greater, the annular space that exists around the well casing can be filled with bentonite or natural clay. (See Illustration F.)

c) Flowing Artesian Well. A well that is constructed in a location where flowing artesian conditions are encountered or expected to occur shall be grouted to protect the artesian aquifer, prevent erosion of overlying geologic materials, and confine the flow to within the casing. Initial drilling operations shall extend into but not through the formation confining the water. The casing shall be installed and the annular opening between drill hole and casing shall be pressure grouted in accordance with Section 920.90(h). If plastic casing is installed, it shall be installed in accordance with Section 920.90(g). The hole shall then be extended into the artesian formation. Flow control from the well shall be provided by valved pipe connections, watertight pump connections, or receiving reservoirs set at an altitude corresponding to the artesian head. The flowing well discharge control shall be provided to conserve groundwater and to prevent the loss of artesian head by preventing or reducing continuous discharges. A flow discharge pipe, where installed, shall not be directly connected to a sewer or other source of contamination.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.90 Construction Materials and Other Requirements

a) Casing and Liner Pipe. In selection of casing and liner pipe, consideration shall be given to the stress to which the pipe will be subjected during construction and the corrosiveness of the water with which it comes in contact. Used or rejectedreject pipe shall not be used.

1) Steel well casing shall meet one of the following standards: ASTM A53/A53M-10, ASTM 589/A589M-06~~American Society For Testing Materials (ASTM) A-53-93A or B, A-589-93~~, or API SPEC 5L-2011,~~American Petroleum Institute 5L, March, 1982 Edition~~ and shall conform to ~~the minimum standards given in~~ Table A.

2) Plastic well casing and liners shall meet the requirements of ASTM F480-12~~Standard F480-94~~ and the NSF/ANSI 14-2010a~~NSF International Standard Number 14-1990~~, Plastic Piping System Components and Related Materials. Evidence of compliance shall be inclusion in the current NSF listing and display of the NSF seal on each section of casing, and marking the casing in accordance with the requirements of ASTM Standard F-480-~~94~~12.

3) Plastic well casing and liners shall~~must~~ be Standard Dimension Ratio (SDR) rated and conform to ~~the minimum requirements given in~~ Table B.

b) Outer Casing. Casing intended for construction purposes only shall be of weight and design ~~as~~ necessary to be watertight and permit installation without distortion or rupture to the specified depth and shall be removed upon completion of the well.

c) Joints. All casing and liner pipe joints shall be watertight. When the water well casing is to be extended, the joint shall be a threaded coupling or welded if the casing is metal, or the joint shall be solvent welded if the casing material is plastic. When plastic well casing is installed, the pipe spigot and socket shall be cleaned and treated with a cleaner primer. Other types of plastic joints may be evaluated and approved by the Department on the basis of NSF/ANSI 14-2010a, NSF/ANSI 61-2010a, and laboratory pressurization tests for leakage. A pressurized connection shall be used when steel casing is used to extend plastic casing when the connection is within 20 feet of the ground surface. ~~Other types of joints may be evaluated and approved by the Department.~~

d) Screens. Screen openings shall provide the maximum amount of open area consistent with the strength of the screen and the grading of the water-bearing formation or gravel pack. The openings shall permit maximum transmitting ability without clogging or jamming. Screens shall be made of non-corrosive material.

e) Drive Shoe. Pipe that is to be driven shall be equipped with a drive shoe.

f) Grouting Guides. Casing that is to be pressure grouted in the drill hole or annular opening shall be provided with a centering shoe and shall have sufficient guides or centralizers to permit the unobstructed flow and deposition of the thickness of grout specified.

g) Plastic Casing Installations. There shall be no penetrations through the ~~inner~~ casing. A formation packer may~~shall~~ be installed just above the screen on unconsolidated formation wells or just above the bottom of the casing. A coupling shall be cemented on the bottom of the casing to stabilize it in the hole. A section of steel well casing, a minimum of 5 feet in length and meeting the requirements of subsection (a)(1)~~nipple 5 to 10 feet long~~ may be used on the bottom of the casing in lieu of the coupling. In rock wells, the casing shall be set into the firm rock a minimum of 3 feet to prevent leaking around the end of the casing. In areas where the water is obtained at the rock surface, the casing shall be set just above the rock.

h) Grouting. Procedures and materials for grouting shall be as follows:

1) Grout Material. Grout shall be bentonite grout~~,~~ or neat cement grout as described in Section 920.10. The Department will maintain a list of water well grouts on its website.

2) Prohibitions. Shale traps, cementing baskets, packers or other devices shall not be used to suspend grout above an open annular space. Excessive development and washing, shoveling of cuttings, or other activities shall not be used to induce collapse of the borehole wall or to reduce the amount of open annular space surrounding the permanent well casing.

3~~2~~) Application. Grouting~~When grouting~~ through the inside of the casing~~, the grouting~~ shall be performed so that the grout fills the annular opening from the bottom to the surface. If~~When grouting through~~ a tremie pipe ~~that~~ is installed in the annular space, grout shall be pumped through the tremie pipe until grout completely fills the annular space to the surface. Bentonite~~, aquajel,~~ or similar material~~materials~~ may be added to the annular opening in the manner indicated for grouting, prior to the cement grouting, to seal any small crevices or fissures and assure that the annular space is open. If the grout settles below the ground surface or the point of

pitless adapter attachment, ~~it is the responsibility of~~ the water well contractor who constructed the well shall~~to~~ grout from the depth of settling to the surface or the point of pitless adapter attachment. If the grout has settled, the annular space shall be grouted as required in this subsection ~~Section 920.90~~(h). When the grout has settled less than 20 feet, the annular space can be grouted with bentonite chips.

4) Grouting Time. The annular space shall be grouted when the drill rig is on the drill site.

5~~3~~) Setting Time. Drilling operations shall not be resumed until the cement grout has set. Neat cement grout shall set for at least 48 hours. Setting time may be reduced from 48 hours by the addition of manufacturers' approved chemicals and following manufacturers' recommendations for setting time. If the casing is fitted with a drive shoe on the bottom of the casing and driven to a firm seat into the consolidated formation, the set time can be reduced to one hour. Bentonite grout shall set for a minimum of one~~1~~ hour from the start of placement of the grout at the bottom of the annular opening by tremie method~~Tremie Method~~ or one~~1~~ hour after completion of grouting by other methods.

i) Plumbness and Alignment. The bore of the hole shall be sufficiently plumb and straight to receive the casing without binding. The casing shall be sufficiently plumb and straight so that it will not interfere with installation and operation of the pump.

j) Construction Water. Water used in the drilling process shall be obtained from a source that~~which~~ will not result in contamination of the well. All of the~~such~~ water shall be treated so as to maintain a free chlorine residual as an extra precaution.

k) Cement Tile for Bored Wells. The minimum wall thickness shall be 2 inches. The minimum strength of the concrete shall be 4,000 pounds per square inch (psi). Before pouring the concrete, #10 gage reinforcement wire mesh with a grid size of 6 inches by 6 inches shall be installed in the concrete casing form. The concrete tile shall be formed to have overlapping joints on the top and bottom.

l) Fiberglass Casing for Bored Wells. Fiberglass casing for bored wells shall meet the requirement for NSF/ANSI Standard 61 and be installed no deeper than 120 feet. The manufacturer shall certify that the fiberglass casing can withstand loads at depths of 120 feet with a 2:1 load factor. Certification shall be in the form of a

letter from a professional or structural engineer registered in Illinois. If the casing is buried, the top of the casing shall not be installed deeper than 30 feet below ground surface.

m) Buried Slab for Bored Wells. The manufacturer shall certify that the buried slab shall withstand loads at depths to which it will be installed with a 2:1 load factor. Certification shall be in the form of a letter from a professional or structural engineer registered in Illinois. The design, including dimensions and type of reinforcement, shall be submitted to the Department along with the certification letter. The slab shall not be installed before Department approval is issued, based on compliance with this Section. If the buried slab is constructed of fiberglass material, it shall meet NSF/ANSI Standard 61.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.120 Abandoned Wells

a) Abandonment of Wells.

1) The owner of a water well, boring, or monitoring well shall assure that a~~such~~ well is sealed within 30 days after it is abandoned and when the well is no longer used to supply water or 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. The Department will s~~hall~~ grant an extension of this time if~~provided~~ the owner submits a written request to the Department indicating the reasons for the request and an estimate of time in which the well will be either sealed or reused. For~~In granting~~ an extension to be granted, the owner shall assure~~,~~ the Department ~~must be assured~~ that applicable protective measures will be taken and that the methods and materials will be in compliance with the Act and this Part. Applicable protective measures may include ensuring that sources of contamination are down grade from the water source, ensuring isolation of the potential source of contamination so~~in such a manner~~ as to prevent a route of contamination of the groundwater~~ground water~~, or isolating the potential source of contamination to prevent accidental introduction of contaminants into groundwater~~ground water~~.

2) Water wells shall be sealed by a licensed water well driller pursuant to the Water Well and Pump Installation Contractor's License Act. An individual who is not ~~so~~ licensed may seal a well if all of the following conditions

exist:

A) The~~, provided the~~ well is located on land that~~which~~ is owned or leased by the~~such~~ individual~~; and~~;

B) The land is used by the~~such~~ individual for farming purposes or as the~~such~~ individual's place of abode; and

C) A~~provided a~~ request is made to the Department or local health department prior to the commencement of sealing indicating how the water well is to be sealed and the materials to be used. The Department or local health department will~~shall~~ grant approval when requested prior to the commencement of sealing if the methods and materials are in compliance with this Section.

b) Sealing Requirements. Where geologic data does not exist for a particular abandoned drilled water well, the~~such~~ water well shall be sealed, from the bottom up to where the well casing is removed, with neat cement grout or any bentonite product manufactured for water well sealing. Water wells, borings~~,~~ or monitoring wells that~~which~~ are abandoned shall be disinfected by introducing a sufficient amount of chlorine to produce 100 parts per million of chlorine in the water in the well and shall be sealed by placing the sealing materials from the bottom of the well to the surface by methods that will avoid segregation or dilution of material, in accordance with the following requirements:

1) Non-creviced, Consolidated Formations~~formations~~. Wells extending into non-creviced sandstone, or other water-bearing consolidated formations shall be sealed by filling the well with disinfected clean pea gravel or limestone chips to within 10 feet below the top of the water-bearing formation or to within 10 feet of the bottom of the casing, whichever is less. Neat cement grout or any bentonite product manufactured for water well sealing shall be placed for a minimum of 20 feet above this point. The upper part of the well to where the well casing is removed shall be sealed by neat cement grout or any bentonite product manufactured for water well sealing. Concrete or cement may be used for ~~such~~ sealing if~~, provided~~ the upper part of the well is dry. (See Illustration J.)

2) Creviced Formations~~formations~~. Wells extended into creviced formations shall be sealed by filling with disinfected clean pea gravel or limestone chips to within 10 feet below the top of the water-bearing formation or to

within 10 feet below the bottom of the casing, whichever is less. Neat cement grout or any bentonite product manufactured for water well sealing shall be placed for a minimum of 20 feet above this point. The upper part of the well to where the well casing is removed shall be sealed by neat cement grout or any bentonite product manufactured for water well sealing. Concrete or cement may be used for ~~such~~ sealing if~~, provided~~ the upper part of the well is dry. If~~Where~~ the earth cover is less than 30 feet, the hole shall be grouted from 10 feet below the creviced formation to where the well casing is removed. (See Illustration J.)

3) Unconsolidated Formations~~formations~~. If~~In the event~~ the water-bearing formation consists of coarse gravel and producing wells are located nearby, the well shall be sealed by filling with disinfected clean pea gravel or limestone chips to 10 feet below the top of water-bearing formation. Neat cement grout or any bentonite product manufactured for water well sealing shall be placed for a minimum of 20 feet above this point. The upper part of the well to where the well casing is removed shall be sealed by neat cement grout or any bentonite product manufactured for water well sealing. Concrete or cement may be used for ~~such~~ sealing if~~, provided~~ the upper part of the well is dry. Abandoned dug and bored wells shall be sealed by using one of the following methods:

A) Filling with disinfected clean pea gravel or limestone chips to within 20 feet below the top of the casing. The upper part of the well to where the well casing is removed shall be sealed for a minimum of 20 feet by filling with neat cement grout, any bentonite product manufactured for water well sealing, or impervious material such as clay. Concrete or cement may be used for ~~such~~ sealing if~~, provided~~ the upper part of the well is dry;~~.~~

B) Placing a one foot layer of any bentonite product manufactured for water well sealing at the bottom of the well, followed by alternating layers of agricultural limestone (limestone fines) and any bentonite product manufactured for water well sealing. The alternating layers of agricultural lime shall be 5~~five~~ to 7~~seven~~ feet thick and the alternating layers of any bentonite product manufactured for water well sealing shall be 6~~six~~ inches thick. The uppermost or top layer shall be agricultural lime; or~~.~~

C) Completely filling~~filing~~ with concrete, cement grout~~,~~ or

impervious material such as clay. (See Illustration K.)

4) More than One Water-Bearing Formation~~one water bearing formation~~. If~~Where~~ wells extend into more than one water-bearing formation, each water-bearing formation shall be sealed independently in the manner described in this Section. Neat cement grout or any bentonite product manufactured for water well sealing shall be placed a minimum of 10 feet above and below at all intermittent water-bearing formations except artesian wells and artesian formations. Disinfected clean pea gravel or limestone chips shall be placed in each water-bearing formation between plugs. When the lower formation has an upflow of water into the upper formation, a pressure seal is required to shut off the upflow while a neat cement plug at least 50 feet in length is pumped in place and allowed to set. The upper part of the well to where the well casing is removed shall be sealed with neat cement grout or any bentonite product manufactured for water well sealing. Concrete or cement may be used for ~~such~~ sealing if~~provided~~ the upper part of the well is dry. (See Illustration L.)

5) Artesian Wells~~wells~~. A~~In such wells, a~~ cement retainer shall be used with pressure grouting equipment used~~utilized~~ to place cement grout. Neat cement grout, containing bentonite ~~or aquajel~~ from 2% to 6% by dry weight, shall be placed for a minimum of 10 feet below and 10 feet above the water bearing formation. The upper part of the well to where the well casing is removed shall be filled with neat cement grout or any bentonite product manufactured for water well sealing. Concrete or cement may be used for ~~such~~ sealing if~~, provided~~ the upper part of the well is dry.

6) Buried Slab Bored Wells~~slab bored wells~~. Wells~~Such wells~~ shall be sealed by filling with disinfected clean pea gravel or limestone chips to within 1~~one~~ foot below the buried slab. The upper part of the well to where the casing is removed shall be sealed with neat cement or any bentonite product manufactured for water well sealing.

7) In lieu of filling the well with disinfected clean pea gravel or limestone chips as required in subsections (b)(1) through (6)~~ of this Section~~, wells may be sealed by grouting from the bottom up by using neat cement grout or any bentonite product manufactured for water well sealing. This material shall be applied the full depth of the well and shall terminate within 2 feet of the ground surface. Concrete grout may be used in the upper part of the well if~~, provided~~ the upper part of the well is dry.

c) Non-Producing Well~~well~~. If~~Where~~ a water well is drilled and a water~~-~~-bearing formation is not located, the water well driller shall fill the water well ~~shall be filled~~ with clay, or neat cement containing bentonite~~, aquajel~~ or similar materials from 2% to 6% by weight, or pure bentonite in any form, ~~by the water well driller~~ not more than 10 calendar days after the well has been drilled. If a water well is drilled and a water-bearing formation is located, but the yield from the formation is not sufficient, or if the water well is to be sealed for any other reason, the water well shall be sealed in accordance with all provisions of this Part regulating the sealing of water wells.

d) The well casing or liner shall be removed to at least 2 feet below final grade, except where the well terminates with a concrete slab that~~which~~ is part of a building floor. If~~Where~~ the well terminates in a slab that~~which~~ is part of a building floor, the sealing material shall be placed flush with the floor. The pump and drop pipe shall be removed.

e) Notification~~.~~

1) The Department, approved local health department, or approved unit of local government shall be notified by telephone or in writing at least 48 hours prior to the commencement of any work to seal a water well or monitoring well. Preparation of the abandoned well, such as pulling the pumping unit, may be completed prior to notification.

2) When a water, boring or monitoring well is sealed, the individual performing the sealing shall submit a sealing form ~~shall be submitted~~ to the Department or approved local health department ~~by the individual performing the sealing~~ not more than 30 days after the well is sealed. The following information shall be submitted on a form~~forms~~ provided by the Department:

A) The~~the~~ date that~~the~~ water, boring or monitoring well was drilled;

B) Depth~~depth~~ and diameter of the water, boring or monitoring well;

C) Location~~location~~ of the water, boring or monitoring well;

D) Type~~type~~ of sealing method used;

E) Original~~original~~ water well permit number if available;

F) Date that~~date~~ the water, boring or monitoring well was sealed;

G) Type~~type~~ of water well (bored, dug, driven or drilled);

H) Whether~~whether~~ the formation is clear of obstructions;

I) Casing~~casing~~ record (explanation of the required removal); and

J) Water~~water~~ well driller's license number and name.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.130 Water Well Permit Requirements

a) Permit. A permit to construct~~, or~~ deepen, modify or seal a water well shall~~must~~ be obtained from the Department or approved local health department prior to start of work~~construction~~.

b) Application. Application for a permit shall be made on the forms provided by the Department or approved local health department. All applications for permit shall include a plan and drawing of the proposed construction. At a minimum the plan shall~~must~~ include:

1) A~~a~~ drawing indicating lot size, direction of slope, location of property lines, and distances from proposed well construction to septic tanks, abandoned wells, property lines, seepage fields, sewers, and all other sources of contamination, and an indication of the type of contamination source;

2) Water~~water~~ well driller's license number and name;

3) Estimated~~estimated~~ daily pumping capacity if greater than 100,000 gallons per day;

4) The~~the~~ location of the water well, including~~,~~ county, city, street address or lot number, township, range, directions to the site (i.e., subdivision lot number, highway number, secondary roads, signs to follow, etc.), and section;

5) Name~~name~~ and address of the owner of the well;

6) Type~~type~~ of well to be constructed (bored, dug, drilled or driven);

7) An~~an~~ estimate of the depth of the well;

8) Type~~type~~ of well (i.e., non-potable use well, such as an irrigation, livestock or industrial water well, private water well, semi-private water well, or non-community public water well); and

9) Proposed~~proposed~~ aquifer.

c) Expiration. A permit is void if construction has not commenced within one year after the~~of~~ date of issuance.

d) Water Well Fee. The fee to be paid for a permit to construct, ~~or~~ deepen, modify or seal a water well shall not exceed~~be~~ $100~~.00~~.

e) The Department will~~shall~~ grant permit requests that~~which~~ meet the requirements of the Act and this Part. The Department's standards for denial of a permit request are set forth in subsection (f).

f) Groundwater Contamination~~.~~

1) The Department will~~shall~~ deny the approval of a permit request when available information indicates that the groundwater aquifer contains contamination that~~which~~ exceeds the Class I groundwater standards adopted in the Groundwater Quality Standards Code ~~(35 Ill. Adm. Code 620)~~. A potential public health problem may be detected on the basis of a sanitary survey, laboratory analyses, location of known sources of pollution, condition of water supply, type of construction or information from previous well owners that~~which~~ might indicate the water would be too hazardous to drink.

2) The Department will~~shall~~ grant approval of a request for a permit when approved treatment is shown to reduce contaminant levels below the levels of recognized health advisories or established by the Department and the federal government and referenced in this subsection (f)(2)~~below~~. Treatment~~Such treatment~~ includes, but is not limited to, sampling for

additional contaminants, more frequent sampling for contaminants, or imposing ~~of~~ maximum contaminant levels specified in the ~~Department's~~ Drinking Water Systems Code ~~(77 Ill. Adm. Code 900)~~, or in ~~recognized~~ public health advisories concerning the safety of drinking water issued by the Department or USEPA.

g) Notification. Any person who constructs~~,~~ ~~or~~ deepens, modifies or seals a water well for which a permit has been issued under this Part shall notify the Department, ~~or~~ approved local health department, or approved unit of local government by telephone or in writing at least two days prior to commencement of the work.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.140 Administrative Hearings

All administrative hearings shall be conducted in accordance with the Department's ~~Rules of~~ Practice and Procedure~~Procedures~~ in Administrative Hearings ~~(77 Ill. Adm. Code 100)~~.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.150 Designation of Agents of the Department

a) The Department may designate and use full-time municipal, district, county~~,~~ or multi-county health departments as its agents for the purpose of performing inspections of water well and closed loop well system construction, investigating complaints, inspecting existing water wells and closed loop well systems and inspecting the work of water well drillers and closed loop well contractors. Health~~Such health~~ departments that~~which~~ desire approval as an agent shall make a~~such~~ request in writing to the Department.

b) The Department will ~~shall~~ designate a~~such~~ health department~~department~~~~s~~ as its agent if~~provided~~ the health department agrees to do the following:

1) Issue~~issue~~ permits for the construction, deepening, modification or sealing of all ~~new~~ water wells and closed loop well systems;~~,~~

2) Perform~~perform~~ inspections of all water wells and closed loop well systems for which the health department has issued a permit; ~~has been issued by the health department,~~

3) Inspect~~inspect~~ all non-community public water supplies;~~, and~~

4) Inspect~~inspects~~ the sealing of all abandoned water wells; and

5) Enter~~enters~~ into a written agreement with the Department for the conduct of an inspection program.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.160 Issuance of Water Well and Closed Loop Well Permits by Units of Local Government or Local Health Departments

a) Approval~~.~~

1) A unit of local government or local health department may issue water well construction, deepening, modification or sealing permits and closed loop well permits if:

A) the unit~~provided such units~~ of local government or local health department adopts~~adopt~~ an ordinance that:~~which~~

i) requires the unit of local government or local health department to issue water well and closed loop well permits;~~,~~ and ~~which~~

ii) establishes a system for the inspection of water well construction and regulation; and

B) the~~provided such~~ ordinance is approved by the Department.

2) The unit of local government or local health department shall~~may~~ charge a water well construction, deepening, modification or sealing permit fee not to exceed $100~~.00~~. The unit of local government or local health department shall charge a closed loop well construction, modification or sealing permit fee as required in Section 920.200(d).

b) To~~In order to~~ receive approval of an ordinance, the unit of local government or local health department shall~~must~~ submit to the Department a request for approval ~~from the Department~~ and ~~must~~ submit a copy of the~~such~~ ordinance, including all

amendments. The Department will approve the ordinance if the ordinance ~~shall be approved by the Department provided the ordinance~~:

1) Has~~has~~ been adopted by the unit of local government or local health department and is~~shall be~~ in effect;

2) Adopts this Part~~adopts the Illinois Water Well Construction Code (77 Ill. Adm. Code 920)~~ and the Illinois Water Well Pump Installation Code; and ~~(77 Ill. Adm. Code 925)~~

3) Requires~~requires the inspection by~~ the unit of local government or local health department to inspect~~of~~ each water well for which a permit is issued and each closed loop well system for which a permit is issued, and the sealing of each abandoned water well~~, boring,~~ or monitoring well within its jurisdiction. The unit of local government or local health department shall enter into a written agreement with the Department to conduct inspections.

c) Required Information. An approved unit of local government or local health department that~~which~~ has an ordinance approved by the Department in accordance with subsection (a) of this Section shall submit to the Department the information listed in Section 920.130(b)~~ of this Part~~ for each water well permit issued. This information shall be submitted within 30 days after~~of issuance of~~ the date of issuance of the permit and shall be submitted on forms provided by the Department.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.180 Closed Loop~~Closed Loop~~ Wells

a) Construction. For each closed loop~~Each closed loop~~ well, the borehole, containing the heat exchanger piping, shall be grouted from the bottom of the borehole to the bottom of the header-piping trench and, in the case of directional bores, the surface of the ground. The Department will maintain a list of approved closed loop well grouts on its website. Closed loop wells that are constructed in a manner that leaves a casing in the ground shall be grouted in a manner consistent with water wells. Closed loop~~as required in Section 920.90(h). Closed loop~~ wells shall not be located closer to water wells and sources of contamination than the minimum separation distances specified in Table C.~~closer than 200 feet from a water well, except when the well is a private water system well and when the~~

~~owner is the same for both the water well and the closed loop well, in which case the water well shall not be closer than 75 feet from the closed loop well.~~

~~b)~~ ~~Piping Pressure. The liquid in the closed loop piping shall be maintained under pressure. The equipment shall be designed to shut down if there is any pressure loss in the system. The system must be pressure tested at a minimum pressure of 20 pounds per square inch by the installer after installation to ensure that there are no leaks in the piping or in the equipment system~~.

~~c)~~ ~~Coolant. The solution used as coolant or the liquid which is pumped through the closed loop well piping must be methanol, ethanol, propolene glycol, calcium chloride or ethylene glycol. These chemicals may be used only in concentrations of 20% or less. When copper piping is utilized, the coolant shall be hydrochlorofluorocarbon 22, or any equivalent refrigerant with less ozone depletion potential.~~

~~d)~~ ~~Piping All plastic piping shall be watertight and shall conform to ASTM D2666-89, D2447-89, D3035-91. All copper piping system and joints shall be watertight and conform to UL 1995. All joints in plastic piping shall be heat fusion welded.~~

~~e)~~ ~~Abandonment. All vertical piping in closed loop wells which is abandoned shall be physically disconnected from the horizontal piping and sealed with neat cement grout or any bentonite product manufactured for water well sealing by pressure grouting. All horizontal piping which is abandoned shall be removed or the coolant must be drained from the piping and disposed of off site in accordance with State and local laws.~~

~~f)~~ ~~Horizontal Piping Distances to Water Wells. Horizontal piping in a closed looped system shall not be closer than 25 feet to any water well.~~

~~g)~~ ~~Distances to Sources of Contamination. Closed loop wells shall not be closer to the sources of contamination listed in Section 920.50(b)(1) than the distances to water wells specified in this Section.~~

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 920.200 Closed Loop Well System Permit Requirements

a) Permit. A permit to construct, modify or seal a closed loop well system shall be obtained from the Department, approved local health department or approved unit of local government prior to performing the work.

b) Application. Application for a permit shall be made on the forms provided by the Department. All applications for permits shall include a plan and drawing of the proposed construction. At a minimum, the plan shall include:

1) Name and address of the owner of the closed loop well system;

2) Closed loop well contractor's registration number and name;

3) The location of the closed loop well system, geographical location of the site using global positioning equipment and a description including county, city, street address, subdivision lot number, township, range, section and directions to the site (i.e., highway number, secondary roads, signs to follow, etc.). Changes in location of the closed loop well system shall be approved by the issuing party prior to construction;

4) Type of facility to be served (e.g., single family residence, apartment building, business, factory, school);

5) The number and depth of the closed loop boreholes;

6) A drawing indicating lot size, location of property lines, and distances from proposed closed loop well system construction to water wells, septic tanks, abandoned wells, property lines, seepage fields, sewers, and all other sources of contamination, if they are within 200 feet of any closed loop well.

c) Expiration. A permit shall be void if construction has not commenced within one year after date of issuance.

d) Closed Loop Well System Permit Fee. The fee to be paid to the Department for a permit to construct or modify each individual closed loop well system shall be $100 for the first 10 closed loop well boreholes drilled and $10 for each additional borehole drilled. The fee to be paid to the Department for a permit to abandon each individual closed loop well system using up to 10 closed loop wells shall be $100 and $10 for each additional closed loop well after 10. A unit of local government or local health department having an approved ordinance in

accordance with Section 920.160 shall set its own fees for permits to construct, modify or seal an abandoned closed loop well system.

e) The Department, approved local health department or approved unit of local government will grant permit requests that meet the requirements of the Act and this Part.

f) Notification. Any closed loop well contractor who constructs, modifies or seals a closed loop well for which a permit has been issued under this Part shall notify the Department, approved unit of local government or approved local health department by telephone or in writing at least two days prior to commencement of the work.

g) Within 30 days after a closed loop well system is completed or abandoned and sealed, the closed loop well contractor shall submit a report of the completion or sealing on a form prescribed by the Department, approved local health department or approved unit of local government.

h) Variance

1) If conditions exist at a proposed installation site that preclude compliance with this Part, a variance shall be requested and shall be approved before well construction begins. The closed loop well contractor may request a variance by submitting to the Department or an approved unit of local government or local health department a written request outlining a specific proposal to be used in lieu of compliance with this Part. The request shall include a plot plan of the property, showing lot size, the location of sewers, septic tanks, buildings, seepage fields, and other sources of contamination on the property and adjacent property, with distances shown to the proposed closed loop well. A description of geologic and soil conditions shall also be included. The Department or approved local health department will approve the variance if the proposal is in accordance with accepted public health and sanitary engineering principles and practices. The Department or approved local health department will notify the applicant in writing of its decision either to grant or deny the variance.

2) Examples of location problems that would preclude compliance with this Part would be the proposed location of a well too close to septic tanks, buildings, sewer lines or barnyards.

3) Examples of public health and engineering principles that would be considered in issuing a variance would be ground surface conditions, depth of the water table, location of sources of contamination, ability of the existing soil to remove bacteria, and geologic conditions.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 920.210 Examination for Closed Loop Well Contractor Certification and Fees

a) Applications

1) Each person who desires to apply for admittance to the examination for closed loop contractor certification shall file an application for examination on forms provided by the Department. Forms may be obtained by writing to the Illinois Department of Public Health, Division of Environmental Health, 525 W. Jefferson Street, Springfield IL 62761.

2) The Department will establish examination dates and locations. A completed application, a current photograph of the applicant, proof of 180 days working as a geothermal well driller and a fee of $175 shall be filed with the Department at least 45 days prior to the examination date.

3) Members of the Closed Loop Well Contractors Certification Board shall be allowed to take the examination.

b) Examination Requirements and Results

1) Examination Content. The examination for a closed loop well contractor certification will test the applicant's knowledge of the location of closed loop wells in relation to water wells and sources of contamination, drilling of boreholes and grouting of the borehole.

2) Passing Grade. The examination shall consist of questions with a grade value of 100 points. To successfully pass the examination, a grade of not less than 70 shall be obtained.

3) Notification of Results. The Department will notify each examinee by letter of the results of his or her examination.

4) Failure to Pass. Any person who fails to pass the examination shall be admitted to a subsequent regularly scheduled examination after filing a new examination application and fee with the Department in accordance with subsection (a).

5) Review of Examinations. Individuals may not review their examinations once they have been taken.

c) Any person holding a valid water well contractor's license issued under the Water Well and Pump Installation Contractor's License Act may apply and receive, without examination or fee, a closed loop well contractor's certification. As part of the application, the person shall submit a copy of his or her current Water Well Contractor's License.

d) Any person who installs horizontal closed loop wells using only the open trench method shall be exempt from certification under this Section.

e) Certification shall expire if the person holding the certifications fails to register within two years after becoming certified or a registered person allows his or her registration to lapse for more than three years.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 920.220 Closed Loop Contractor Registration, Renewal and Fees

a) Registration Required. All closed loop well contractors shall hold a certificate of registration as a closed loop well contractor issued by the Department. All closed loop well contractors shall annually file an application to renew their registrations with the Department.

b) Application. An individual may apply for registration as a closed loop well contractor on forms provided by the Department and shall submit the registration application fee of $100 to the Department.

c) Certification by an Approved Organization. An applicant for registration under this Section shall provide verification of certification by an organization approved by the Department. The Department shall keep a list of approved organizations posted on the Department's website.

d) Closed Loop Well Contractor Certification by the Department. An applicant for registration shall submit proof of certification under Section 920.210 unless specifically exempt from certification in Section 920.210(c).

e) Renewal Fee. The fee to be paid for the annual renewal of a closed loop well contractor registration shall be $100. All license renewals shall be made by November 30 of each year.

f) Late Fee. The late fee to be paid for a registration annual renewal submitted after November 30 shall be $25.

g) Expiration. A registration issued under this Section shall expire on December 31 of the year issued, except that an original license issued after October 1 and before December 31 shall expire on December 31 of the following year.

h) Continuing Education Required. All renewals and reinstatements of a closed loop well contractor registration shall be made on forms prescribed by the Department, and shall include documentation that the contractor has attended at least six hours of approved continuing education in the preceding two years that is approved in accordance with Section 920.240.

i) Reinstatement. The fee to be paid for the reinstatement of a closed loop well contractor registration that has expired for a period of less than three years shall be $50 plus all lapsed renewal fees

j) Restoration. A registration that has expired for more than three years may be restored by taking and passing the written closed loop well contractor certification exam and paying the required fees.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 920.230 Registered Closed Loop Well Contractor Responsibility

a) Closed Loop Well Construction. An individual who is not registered under the Act may perform labor and services in connection with the installation of a closed loop well, provided that the labor and services are performed at the direction and under the personal supervision of a registered closed loop well contractor. In order for the registered closed loop well contractor to perform personal supervision, the registered closed loop well contractor shall visit the work site at

least once, and as often as necessary, to assure that the unregistered individual is performing work in compliance with this Part.

b) The registered closed loop well contractor shall visit the work site when requested by the Department. If the work is performed by an unregistered individual, under the supervision of a registered closed loop well contractor, the registered closed loop well contractor shall sign the closed loop well construction report, indicate that a closed loop well contractor has personally supervised the work, and indicate the name of the unregistered person supervised.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 920.240 Closed Loop Well Continuing Education Sessions

a) Approval of Continuing Education Sessions. Each entity that has established or proposes to present a continuing education session under the Act shall request Department approval by submitting its continuing education program to the Department. Requests shall be submitted to the Department no later than 60 days before the date the program begins. Continuing education sessions shall not be presented until at least 30 days after Department approval. A list of approved continuing education sessions will be available from the Department. The Department will approve sessions that address at least one of the following topics:

1) Closed loop well construction in general;

2) Grouting Products and Procedures;

3) Code Requirements, Ground Water Protection;

4) Geological Topics, Strata;

5) Safety hazards associated with the closed loop well construction industry;

6) Other relevant information necessary for the continued improvement of knowledge of a closed loop water well contractor; or

7) New Technologies.

b) Minimum Classroom Hours for Continuing Education Sessions. A continuing education session shall have a minimum of two classroom contact hours of closed loop well topics.

c) Requests for Approval. When requesting approval, the entities shall submit the following information to the Department:

1) Title of session;

2) Sponsoring organization;

3) Location of session;

4) Names and qualifications of instructors or presenters; and

5) Brief description of each topic and the amount of time for each topic.

d) Contact Hours. Total classroom contact hours excluding breaks (a classroom contact hour is 60 minutes).

e) Attendance. The entity shall provide, upon request, the methodology used to verify attendance. Attendance records shall be retained for three years after the continuing education session.

f) Certificate. A certificate of completion shall be issued for each participant enrolled in a continuing education course. The certificate shall contain the participant's name, course completed, dates, hours completed and location of course.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 920.250 Approval of Closed Loop Well Third Party Organizations

a) Approval of Third Party Organizations as Described in 920.220(c). The Department, with the advice of the Closed Loop Well Contractor's Advisory Board, shall make the decision to approve organizations dedicated to promoting top quality and safe closed loop installations.

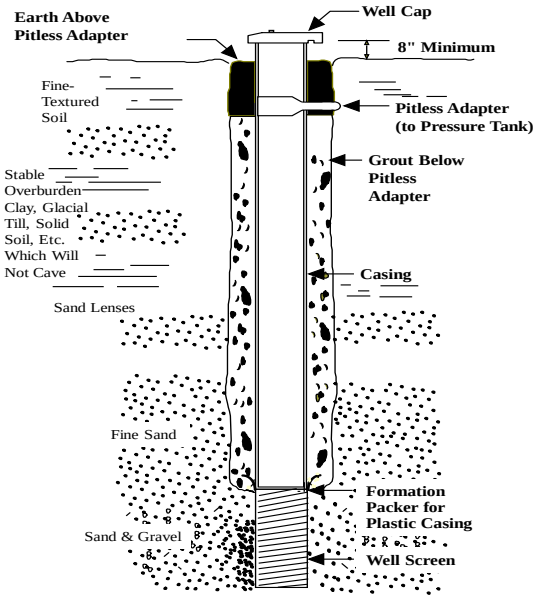
b) Requests for Approval. When requesting approval, the entities shall submit the following information to the Department:

1) The organization's mission statement; and

2) Proof that the organization can meet the requirements of Section 920.240.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 920.ILLUSTRATION A Unconsolidated Formations: Oversized Drill Hole



1. Diameter of drill hole must be 3" larger than the outer diameter of the casing or coupling, whichever is greater.

2. Casing must extend a minimum of 20'.

3. Annular space that exists between hole and casing must be filled with bentonite grout or neat cement grout within a maximum of 10 feet of the top of the screen to finished ground surface.

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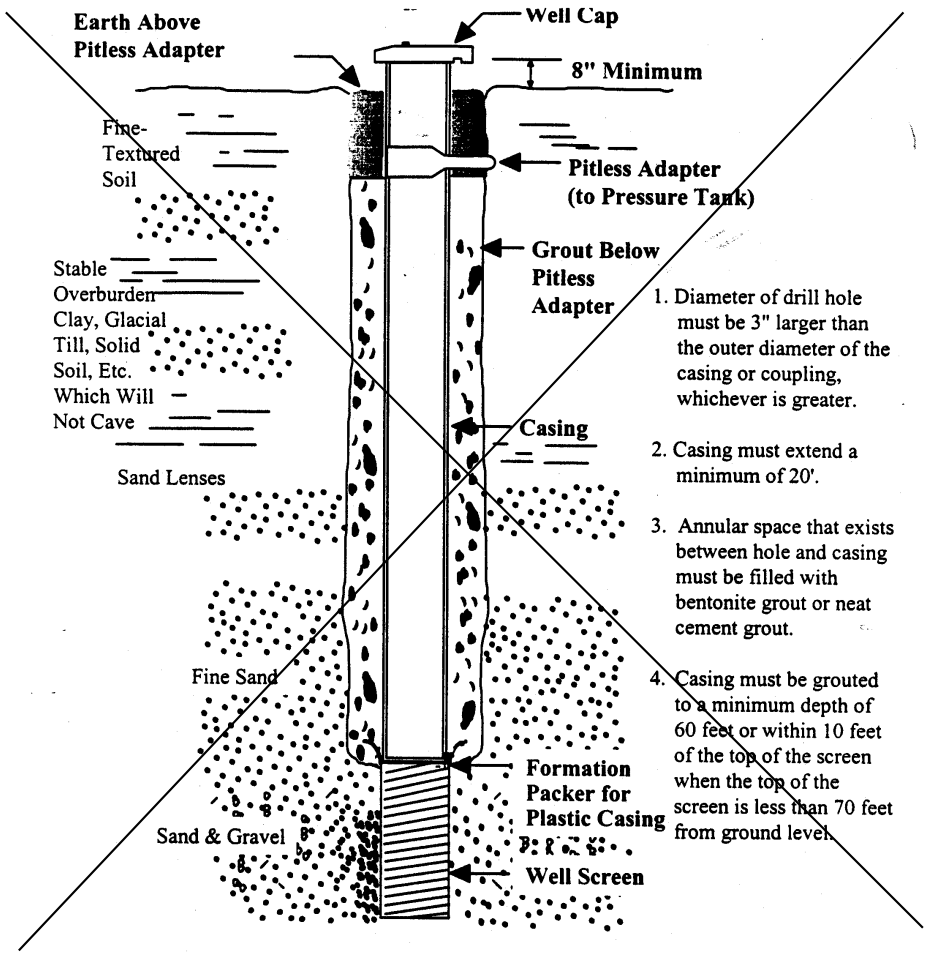
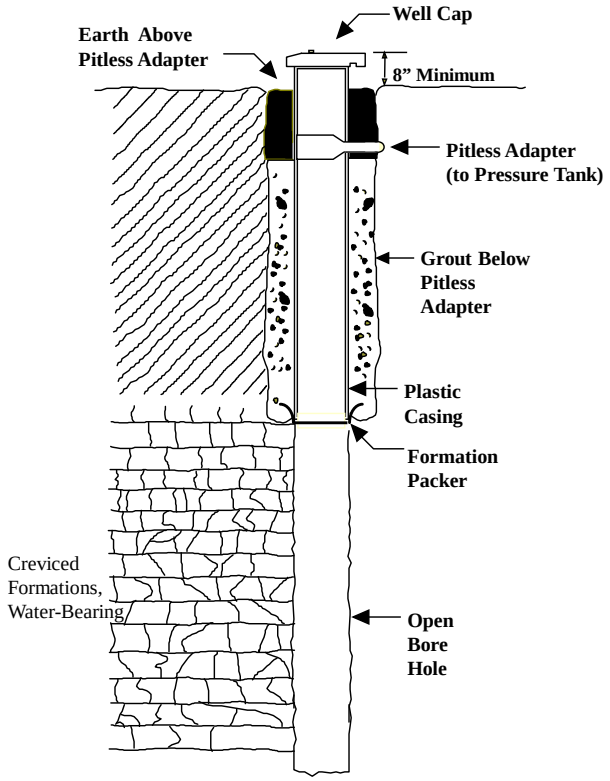


(Source: Amended at 37 Ill. Reg. _____, effective _____)

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF ADOPTED AMENDMENTS

Section 920.ILLUSTRATION E Creviced Formations: Earth Mantle Cover Over 30 Feet Thick – Oversized Drill Hole



1. When a tremie pipe is used to grout, the diameter of the drill hole must be at least 3" larger than the outer diameter of the casing or coupling, whichever is greater.

2. When grout is pumped through the inside of the casing, the diameter of the bore hole must be at least 2" larger than the outer casing or coupling, whichever is greater.

3. The annular space ~~that exists between the drill hole and the casing~~ must be grouted from the bottom of the casing to ground level~~to a minimum depth of 60 feet~~.

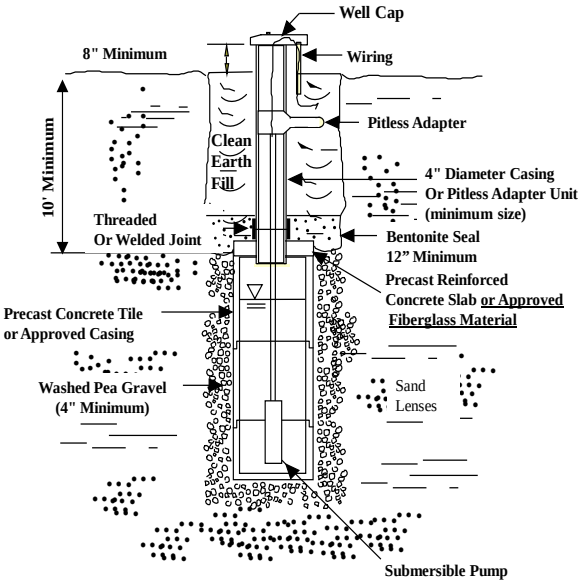
(Source: Amended at 37 Ill. Reg. _____, effective _____)

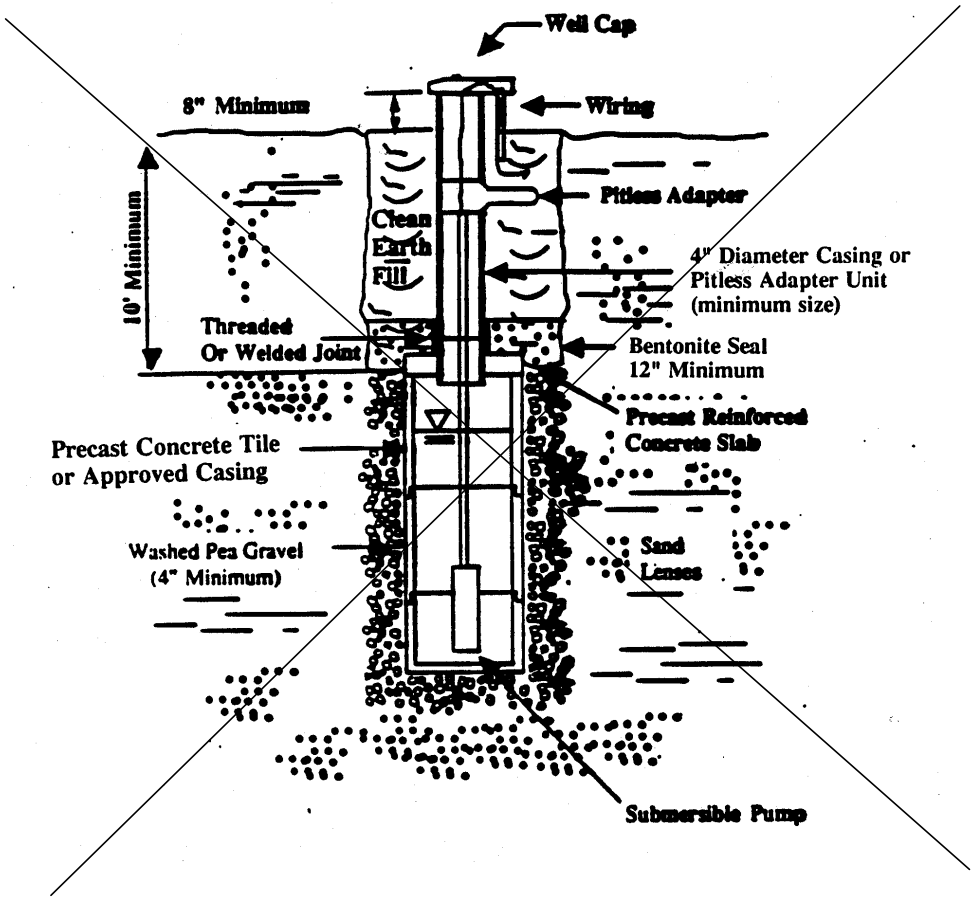
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF ADOPTED AMENDMENTS

Section 920.ILLUSTRATION H Bored or Dug Well – Buried Slab Construction

Field Code Changed





(Source: Amended at 37 Ill. Reg. _____, effective _____)

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

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[1]	200	NA
Water Well[1]	NA	200
Water Well (when the owner of the closed loop well and a water well serving a private water supply is the same)[1]	75	75
Leaching Pit	100	100
Pit Privy	75	75
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.

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: Added at 37 Ill. Reg. _____, effective _____)