

Chapter 26

Water

Part 1 Wells

§26-101.	Short Title
§26-102.	Purpose
§26-103.	Application
§26-104.	Design Standards
§26-105.	Registration
§26-106.	Inspection
§26-107.	Permits
§26-108.	Water Supply Inspection
§26-109.	Fees
§26-110.	Effective Date of Permit
§26-111.	Violations
§26-112.	Liability

Part 1

Wells

§26-101. Short Title.

This shall be known and may be cited as the “Well Ordinance.”
 (Ord. 2004-9, 11/8/2004, §101)

§26-102. Purpose.

The intention of this Part is to ensure and protect the quality and suitability of domestic water supply, and to secure and maintain the minimum required isolation distances between water supplies and sewage disposal systems or other sources of contamination.
 (Ord. 2004-9, 11/8/2004, §102)

§26-103. Application.

1. This Part shall apply to all wells which have not been completed, or which are not in operation or in an in operable condition at the time of passage of this Part.
2. This Part shall further apply to the reconstruction, major repair and other changes to existing wells, when, in the opinion of the Inspection Officer, such reconstruction, major repair and other changes may affect the quality and suitability of the water supply on the property upon which the well is constructed or on surrounding properties.
 (Ord. 2004-9, 11/8/2004, §103)

§26-104. Design Standards.

The following standards shall apply for water supplies:

A. *Drilled and Driven Wells.*

(1) *Location.* Drilled and driven wells shall be located at a point free from flooding and at the following minimum distances to existing or possible future sources of pollution:

Source of Pollution	Minimum Distance
Storm drains	25 feet
Drains carrying domestic sewage or industrial wastes	50 feet
Septic or holding tanks	50 feet
Surface/subsurface sewage disposal fields	100 feet
Sewage seepage pits, cesspools	100 feet
Privies	50 feet
Fuel tanks	As approved*

Source of Pollution	Minimum Distance
Other (ditches, streams, barnyards, rainwater pits, etc.)	As approved*
**“As approved” shall be interpreted as reviewed and accepted by the Township Engineer.	
Additional Location Restrictions	Minimum Distance
Driveways	10 feet
Principal structure/dwelling	20 feet
Property Lines	10 feet

B. Construction.

(1) *Source.* The source of supply shall be from a water bearing formation drawn not less than 100 feet from the ground surface, with at least 20 feet of properly grouted well casing, and from no formation which is subject to pollution.

(2) *Casing.*

(a) All wells serving as a water supply shall be equipped with a watertight and durable wrought iron, steel, or other type of approved well casing having a minimum thickness of 0.1875 inches or PVC plastic casing having a minimum thickness of 0.175 inches. The sections of casing shall be joined together by threaded couplings or joints, by welding, or by any other watertight approved joint or coupling. The casing shall be carried to a minimum depth of 20 feet and (then) extended an additional 5 feet into firm bedrock or other impervious strata and grouted in place. Well casing material other than wrought iron or steel must be resistant to the corrosiveness of the water and to the stresses to which it will be subjected during installation, and the grouting operation. Casing and grouting material must be compatible. The criteria established in AWWA Standard A100-84 must be followed. Casing shall terminate a minimum of 1 foot above the surrounding, finished surface grade and shall not be cut shorter. All casings for water supply or geothermal return wells shall be fitted with an insect resistant well cap.

1) Ferrous casings shall be new pipe meeting ASTM or API specifications for water well construction, have additional thickness and weight if minimum thickness is not considered sufficient to assure reasonable life expectancy of the well, be capable of withstanding forces to which it is subjected, and have full circumference welds or threaded pipe joints.

2) Non-ferrous casings shall meet appropriate ANSI/ASTM or NSF Standards for well casing applications as outlined in AWWA Standard A100-84. Nonferrous casing materials shall not impart any taste, odor, or toxic substances to the well water. Non-ferrous casing, if used, shall not be driven. The casing shall be placed a minimum of

5 feet into the consolidated formation with a minimum annular opening of 3 inches or larger so that the grout may be placed in accordance with the provisions of this Section.

(b) An annular space shall be provided between the well casing and the earth formation of a radius of at least 1½ inches greater than the casing radius, excluding coupling for internal pressure grouting, or 1½ inches greater than the casing radius, excluding coupling for external grouting. The annular space shall be completely filled with impervious cement grout or equivalent sealing material from bottom of the casing to within 5 feet of the ground surface. External grouting shall be accomplished utilizing a tremie pipe and grout pump to force out any standing water on the outside of the well casing.

(c) The casing shall be sealed effectively against entrance of water from water bearing formations, which are subject to pollution, through which the casing may pass. If casings of smaller diameters are used in the lower portions of the well, effective watertight seals shall be provided between the casings where they telescope. In such instances, sections of casing shall telescope for a minimum distance of 4 feet.

[Ord. 2008-9]

(3) *Well Covers.*

(a) Every potable water well shall be equipped with an overlapping cover at the top of the well casing or pipe sleeve. Covers shall extend downward at least 2 inches over the outside of the well casing or wall. All well caps shall indicate well driller's name, depth of well and depth of casing.

(b) Where pump sections or discharge pipes enter or leave a well through the side of the casing, the circle of contact shall be watertight. The use of plastic/nylon adapters for this purpose is not acceptable. A brass pitless adapter with brass connectors or equivalent is required.

(c) Any restoration/repair of wells with casing terminating below grade shall be raised above grade to 8 to 12 inches minimum.

(d) Electrical wiring for well pumps shall be encased in conduit from the bottom of the water supply line trench to the well cap.

(4) *Drainage.* All potable water wells and springs shall be constructed so that surface drainage will be diverted away from the well or spring.

(5) *Pumping Equipment.* All pumps installed in wells drilled to a depth greater than 300 feet, but not to exceed 450 feet shall be installed with 200 pound per square inch plastic pipe or better. Well depths exceeding 450 feet shall have pumps installed with Schedule 80 PVC threaded pipe or galvanized steel pipe to support the increased pumping pressure required for deeper wells. The minimum acceptable pressure rating on plastic pipe is 160 pounds per square inch, regardless of water supply depth.

(6) *Pump Enclosure.* Any pump room or any enclosure around a well pump shall be drained and protected from freezing by heating or other approved means. Where pumps are installed in basements, they shall be

mounted on a block and shall be not less than 18 inches above the basement floor. Well pits shall be prohibited.

C. *Flow Requirements.* This Part places no restrictions on “quantity” of water. The acceptability of water quantity is the sole responsibility of the property owner.

D. *Well Certification.*

(1) *Drillers Report.* A report for each well shall be prepared by the driller and shall be submitted to the Township for evaluation and approval. The well report shall contain the following pertinent information:

- (a) Owner of property.
- (b) Date of completion.
- (c) Depth of well.
- (d) Well driller.
- (e) Type and size of casing.
- (f) Type of test pump used.
- (g) Address and lot number.
- (h) Depth of casing.
- (i) Static water level.
- (j) Yield in gals/min.
- (k) Grouting certificate.
- (l) Pump output-gals/min.

(2) *Water Quality.* Subsequent to house construction, but prior to or concurrent with the “request for occupancy” the owner/contractor shall initiate appropriate action to have the on-site water supply tested by a certified laboratory, then provide to the Township a laboratory report containing the following information:

- (a) Coliform bacteria.
- (b) Nitrates.
- (c) Iron.
- (d) Hardness: equivalent calcium carbonates.
- (e) Manganese.
- (f) pH.
- (g) Total dissolved solids (TDS).

**The Township can require additional testing prior to granting a certificate of occupancy as may be deemed necessary by the Township Engineer.

E. *Dug Wells.* No new dug wells will be permitted in the Township of Reading due to the great danger of pollution and unreliability of water supply.

F. *Springs.* This Section of the Part is to be used for the reconstruction of existing springs only. Before rehabilitation shall begin on an existing spring, a report shall be made and delivered to the Township to determine the advisability of said reconstruction, which shall include as a minimum, quality and quantity of

water. Springs for new construction are not considered an adequate water supply and will not be considered as valid for the issuance of a building permit. Reconstructed springs shall be completely enclosed by walls and a cover of reinforced concrete or equally durable watertight material. The cover shall have a firm foundation so as to effectively prevent settling. The uphill wall shall be so constructed as to prevent entrance of surface water. Where manhole covers are used, the manhole shall be at least 24 inches in diameter. It shall extend at least 3 inches above the surrounding ground surface and be covered by an impervious durable cover of concrete, steel or equivalent material that overlaps the manhole vertically by at least 2 inches. The manhole cover shall be effectively secured to the manhole by bolting, locking or equivalent means, and shall be kept so secured.

G. *Abandoned Water Supplies.* Wells, springs, cisterns and water storage tanks, which are no longer in use, shall be removed, filled or otherwise maintained in a condition such as to prevent access by unauthorized persons or animals to prevent accidental injury, and to effectively prevent pollution of groundwater. Abandoned wells shall be tremie grouted from the bottom up in one continuous operation using cement with 5 percent bentonite grout or other DEP-approved method.

Wells and springs shall not be used for the disposal of liquid, gaseous and/or solid wastes.

H. *Water Service.*

(1) *Size of Water Service Pipe.* The minimum diameter of water service pipe shall be $\frac{3}{4}$ inch.

(2) *Separation of Water Service and Building Sewer / Drain.* Water service pipe shall be installed 12 inches above sewer drains. See Uniform Construction Code (International Plumbing Code) [Chapter 5, Part 1] for specific requirements.

I. *Geothermal Wells.* Geothermal Heat Pump Systems (GHPS).

(1) *Definitions.*

Closed-loop—a geothermal heat exchanger that circulates a nontoxic antifreeze heat transfer fluid through a loop or multiple loops of polyethylene piping installed below the ground surface or within a surface water body.

Direct exchange—a type of closed-loop heat exchanger that uses loops of copper tubing installed in pits, trenches or vertical borings in the earth, through which a refrigerant is circulated.

Heat exchange well—a well used for the purpose of utilizing the geothermal properties of earth formations for heating or air conditioning.

Open-loop—a geothermal heat exchanger that withdraws groundwater from a supply well, passes the groundwater through a heat pump, and discharges the temperature-altered water back either to the ground in a discharge (return) well or to the ground surface or into surface water.

(2) *“Closed-Loop” Geothermal Systems.*

(a) *Borehole Locations.*

1) The following minimum isolation distances to existing or potential sources of pollution shall be maintained:

a) *Source of Pollution.* Minimum isolation distances from the proposed Closed-Loop Borehole to the facilities listed below:

Water Related	Minimum Distance
1. Delineated wetlands, flood plains, lakes, ponds, or other surface waters.	50 feet
2. Stormwater pits.	50 feet
3. Storm drains, retention basins, stormwater stabilization ponds.	50 feet

Sewage Related	Minimum Distance
1. Subsurface sewage absorption areas, elevated sand mounds, cesspools, sewage seepage pits.	100 feet
2. Spray irrigation site perimeter, sewage sludge and seepage disposal sites.	50 feet
3. Septic tanks, aerobic tanks, sewage pump tanks, holding tanks.	50 feet
4. Sewer drains, public sewer laterals.	5 feet

Chemical Related	Minimum Distance
1. Preparation area or storage area of hazardous spray materials, fertilizers or chemicals, salt piles.	300 feet
2. (If borehole is cased and grouted inside and out.)	(150 feet)
3. Surface or subsurface containers or tanks of greater than 1000 gal. used for storage of materials that cannot be properly renovated by passage through soil. This includes, but is not limited to, gasoline and all other petroleum products. (If borehole is cased and grouted inside and out.)	300 feet (150 feet)
4. Surface or subsurface containers or tanks of 1000 gal. or less used for storage of materials which cannot be properly renovated by passage through soil. This includes, but is not limited to, gasoline and all other petroleum products. For example, the type of tanks frequently used in homes using oil for heating purposes.	100 feet

Chemical Related	Minimum Distance
5. Identified NPL Site (Superfund Sites) plume area. (If borehole is cased and grouted inside and out.)	300 feet

Miscellaneous	Minimum Distance
1. Property lines, all right-of-ways, easements.	10 feet
2. Any other source of pollution.	As Approved

b) Any proposed deviations from the isolation distances prescribed above must be approved in writing by the Township, or his designee, with reasons stated for such deviation.

(b) *Construction.*

1) Closed-Loop Geothermal Boreholes shall be located, drilled and finished in a manner that will protect the borehole structure from damage from surface activities or other natural occurrences so that the quality of the local groundwater cannot be affected.

2) The Inspection Officer or designated Township employee shall be responsible for insuring that the borehole is drilled in the permitted location. Deviation from the permitted location must receive prior written approval from the Township. The well contractor shall be responsible for drilling the borehole and the final backfilling after the pipe loop has been installed.

3) Casings not required. Casings may be necessary to hold the borehole open during the drilling process. Casings may be left in the borehole at the discretion of the well contractor. When a casing is used grouting the annular space is required.

4) The pipe loop is to be installed by a contractor who is certified in the proper method of heat fusion specified by the pipe manufacturer. The well contractor shall be responsible for insuring that the pipe loop is installed in accordance with the specifications of the ground source heat pump system manufacturer, the International Ground Source Heat Pump Association, National Groundwater Association, the pipe manufacturer, and that the borehole is properly backfilled.

5) Backfilling shall be according to the specifications of the ground source heat pump equipment manufacturer. When sand is the specified backfill material, the borehole shall be constructed in the same manner as a water supply well. A casing is required to be used and the annular space is required to be grouted.

6) If the closed-loop borehole penetrates bedrock it must be grouted from a depth of 15 feet into the bedrock to the top of the borehole. The recommended backfilling material for these boreholes shall be bentonite.

7) Pressure testing is required with water at 100 psi for 30 minutes with no leaks observed. Evidence of testing from the installer must be provided to the Township.

8) Boreholes for the installation of a vertical closed-loop may extend several hundred feet in depth. Since vertical closed-loops and direct-exchange loops may penetrate drinking water aquifers, it is critical that loop boreholes be properly grouted to protect drinking water. Sealing the space between the vertical loop piping and borehole from the bottom up to the ground surface with an appropriate low permeability grout, as recommended by the GHPS manufacturer and consistent with the state well code, is required.

9) The location of trenches and boreholes for GHPS closed-loops should be well documented and recorded.

(c) *Permitting.*

1) Closed-Loop Geothermal Boreholes shall be permitted in accordance with paragraph .I(3). Each borehole must be permitted using a single application. A fee shall be charged for each borehole.

(3) *“Open-Loop” Geothermal Systems.*

(a) The geothermal delivery and return wells that depend on groundwater supplies for heating and cooling must meet all isolation distance requirements in paragraph A.

(b) The geothermal delivery well must be tested for all specified water quality standards listed in paragraph .D(2). If the geothermal delivery well will also be used as a drinking water supply, all water quality requirements listed in paragraph .D(2) must be met.

(c) Potable water supply wells should be isolated from GHPS discharge wells a minimum distance of 50 feet. No chemical additives are permitted.

(d) GHPS discharge wells should be designed to discharge water back into the same aquifer from which the supply well withdraws groundwater to ensure that the quality of the discharged water does not degrade the quality of a drinking water aquifer.

(e) An open-loop GHPS equipped with a well for discharging heat pump water back into an aquifer is considered a Class V well under Federal Underground Injection Control regulations (40 CFR 144.3). The EPA may require a permit for a heat pump return well.

[*Ord. 2008-9*]

(*Ord. 2004-9, 11/8/2004, §104; as amended by Ord. 2008-9, 1/19/2009, §§1, 2*)

§26-105. Registration.

1. No construction, drilling, digging, reconstruction, major repair or other change of or for any well/water supply for the production of water for any purposes shall commence unless the property owner, or his/her duly authorized agent, shall apply for and receive a well permit for such construction activity from the Township of Reading.

2. Application for a well permit shall be made upon a form supplied by the Township of Reading and shall be submitted to the Township Inspection Officer or designated Township Employee for review and approval. [*Ord. 2008-9*]

3. The application shall set forth the following:

A. Name(s) of property owners.

B. Address or location of property.

C. Scale/sketch of premises showing actual or proposed location of wells/ water supply, buildings, septic or holding tanks, drain fields, boundary lines, storm drains, sanitary sewers, sewage disposal fields, sewage seepage pits, cesspools, privies, fuel tanks, stormwater easements, driveways, and waterways.

D. Name and license number of well driller.

(*Ord. 2004-9, 11/8/2004, §105; as amended by Ord. 2008-9, 1/19/2009, §3*)

§26-106. Inspection.

1. Upon receipt of an application for a well permit, the Township, through its duly authorized Inspection Officer, shall within 7 days, perform an inspection of the premises on which the well is to be constructed. The inspection shall be conducted in accordance with the provisions of this Part and the provisions of the Township Code of Ordinances.

2. Upon completion of the inspection, the Inspection Officer shall either (A) issue a permit to the applicant indicating the approved location for the well and special instructions for construction, if any, or (B) refuse to issue the permit, and, in such event, shall provide the applicant with written reasons for such refusal.

(*Ord. 2004-9, 11/8/2004, §106*)

§26-107. Permits.

All permits shall be issued on a form provided by the Township of Reading, which shall be executed by the duly authorized Inspection Officer. All permits shall be issued to the property owners or their duly authorized representative/well driller.

(*Ord. 2004-9, 11/8/2004, §107*)

§26-108. Water Supply Inspection.

1. Upon completion of construction or at such time as the Township Inspection Officer may deem appropriate, the Inspection Officer shall review the Well Driller's Report and the Well Quality Report of the well/ water supply to determine whether there has been compliance with the permit issued. Upon completion of the inspection, the Inspection Officer shall (A) issue an "approval of operation" upon the original permit, or (B) deny such approval due to non-compliance with the permit issued, in which event, written reasons for such denial shall be noted on the original permit. [*Ord. 2008-9*]

2. An application for a building permit "will not" be accepted and/or approved in the absence of an "approval of operation" issued under the terms and conditions of this Part.

3. The Township shall also be given the opportunity to conduct an inspection at

the time of abandonment of a well/water supply.

(*Ord. 2004-9, 11/8/2004, §108; as amended by Ord. 2008-9, 1/19/2009, §4*)

§26-109. Fees.

All applications for a well permit shall be accompanied by a fee payable to the Township of Reading in accordance with a schedule of fees established/revised from time to time by resolution of the Township Board of Supervisors.

(*Ord. 2004-9, 11/8/2004, §109*)

§26-110. Effective Date of Permit.

1. All permits shall be in effect as of the date of issuance, and shall remain in effect for a period of 6 months. In the event that water supply construction under the permit has not been completed at the expiration of 6 months from the date of issuance, the permit shall expire and the validity of the permit shall cease and terminate.

2. A request for a one-time extension to a permit must be submitted to the Township in writing, 10 days before the expiration date of the permit. Extensions are limited to 30 days. Subsequent requests must be accompanied by an application for a new permit with appropriate fee.

3. In the event a permit expires and construction has not begun, an application for a new permit must be submitted with appropriate fee.

4. Expiration of a permit during construction will result in the landowner being prosecuted in accordance with the violations provision of this Part.

(*Ord. 2004-9, 11/8/2004, §110*)

§26-111. Violations.

1. The Board of Supervisors, the Township inspection officer, or any other authorized officer or employee of Reading Township, is hereby authorized to give notice by personal service or by United States Mail to any person in violation of this Part, setting forth the violation of the Part, and directing said person to conform to the requirements of this Part within 15 days after the date of issuance of such notice.

2. In case any person, firm, or corporation should neglect, fail, or refuse to comply with such notice within the period of time stated therein, the Board of Supervisors may order the completion of any work necessary to comply with the Part, and the costs thereof, together with a penalty of 10 percent of the costs thereof, shall be collected by Reading Township from such person, firm, or corporation in the manner provided by law, including, but not limited to, liening the property for said amount.

3. Any person, firm or corporation who shall violate any provision of this Part, upon conviction thereof in action brought before a District Justice in the manner provided for enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure, shall be sentenced to pay a fine of not more than \$1,000 plus costs, and, in default of payment of said fines and cost, to a term of imprisonment not to exceed 90 days.

(*Ord. 2004-9, 11/8/2004, §111*)

§26-112. Liability.

No responsibility or liability for the construction of any well/water supply shall be deemed to be placed upon the Township of Reading or its officers, agents, or employees by virtue of the terms of this Part or otherwise.

(Ord. 2004-9, 11/8/2004, §113)

