

CHAPTER 17

INDIVIDUAL WATER SUPPLY, IRRIGATION WELL, AND GEOTHERMAL WELL SYSTEM REGULATIONS

ARTICLE A PURPOSE AND DEFINITIONS

Section 17-2 Purpose

To establish minimum standards for location, construction, modification or abandonment of individual water supplies, irrigation wells, and geothermal wells, and respective system installations for protection of public health and welfare.

Section 17-3 Scope

After the effective date of adoption of these regulations, no individual water supply system shall be constructed or modified contrary to the provisions herein.

This Chapter does not apply to water supply systems regulated by the Pennsylvania Department of Environmental Protection as set forth under the PA Safe Drinking Water Act (35 P.S. 721.1 et. seq.).

Section 17-4 Definitions

ABANDONED WELL - Any individual water supply well in existence prior to enactment of these regulations which has not been in service for a period of three (3) consecutive years or which has been replaced by an alternative water supply source.

AGRICULTURAL WELL - Any water supply used specifically for farm crops or animals with no possibility of human consumption.

AQUIFER- A saturated permeable geological formation that stores and transmits significant quantities of water under ordinary hydraulic gradients.

CLOSED-LOOP GEOTHERMAL WELL SYSTEM - A heat pump system using groundwater, surface water, or sub-surface as the heating/cooling source which continuously circulates a heat transferring liquid through sealed pipe and a heat exchanger. The internal liquid is not consumed from or discharged into the environment.

COLIFORM- All of the aerobic and facultative anaerobic, gram negative, non-spore forming, rod-shaped bacteria, which are capable of fermenting lactose with gas formation within forty-eight (48) hours at thirty-five (35°C) degrees Celsius.

COMMUNITY WATER SYSTEM- A system for the provision of water for human consumption if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals.

CONSTRUCTION OF WELLS- All acts necessary to obtain groundwater, or artificially recharge groundwater. Provided, however, such term does not include acts necessary for obtaining or for prospecting for oil, natural gas, minerals, or products of mining or quarrying, or for inserting media to repressure oil, or natural gas formations for storing petroleum, natural gas, or other products and services. This includes the excavation or drilling of wells, but excludes installation of pumps and pumping equipment.

CONSTRUCTION SPECIFICATIONS- A MCHD document outlining methods and materials necessary for the installation of individual water supply wells.

DISINFECTION- A process which inactivates pathogenic organisms in water by chemical oxidants, or equivalent agents, such as ultraviolet light.

DRILLING- Any act of penetrating soil or rock such as by boring, coring, washing, jetting, driving or digging.

EMERGENCY WELL- A well drilled to address conditions which pose an immediate and significant danger to public health and welfare.

FLOWING WELL- A well that yields water by artesian pressure at the ground surface.

GEOHERMAL WELL- A well installed for the purpose of extracting water for heating or cooling.

GROUNDWATER- Water occurring below the ground surface in saturated fractures, pores, channels, or voids in the underlying soil or rock.

HYDROFRACTURING (HYDROFRACKING) - A process to increase yield whereby water is pumped into a new or existing well to create new fractures, or to clear existing ones.

INDIVIDUAL WATER SUPPLY SYSTEM- A system including wells, pumps, piping, storage and/or treatment equipment supplying water for human consumption and not regulated under the Pennsylvania Safe Drinking Water Act (35 P.S. 721.1 et. seq.) or the regulations promulgated thereunder.

INDIVIDUAL WATER SUPPLY WELL- A well associated with an individual water supply system.

IRRIGATION WELL - An individual water supply used to artificially apply water to land to grow vegetation.

MCHD- Montgomery County Health Department

MODIFICATION- Any action which necessitates entering a well with drilling tools; treating a well to increase yield; altering the physical structure or depth of the well; removal or replacement of well casing; or alterations to grouting.

MONITORING WELLS- A well used to observe water levels and/or obtain samples of groundwater.

NEW CONSTRUCTION- Any building or structure which is constructed or whose use is modified between residential, commercial or industrial after the effective date of these regulations.

NON-ABANDONMENT DECLARATION- (MCHD-WW-005), which states a previous water supply is to remain operational.

OPEN-LOOP GEOTHERMAL WELL SYSTEM- A heat pump system using groundwater or surface water as the heat/cooling source, circulated through the heat exchanger and returned to the environment via a separate discharge point.

PADCNR- Pennsylvania Department of Conservation and Natural Resources or its successors or assignees.

PADEP- Pennsylvania Department of Environmental Protection or its successors or assignees.

PERSON- An individual, partnership, association, company, corporation, municipality, municipal authority, political subdivision or an agency of federal or state government. The term includes the officers, employees and agents of a partnership, association, company, corporation, municipality, municipal authority, political subdivision, or an agency of federal or state government.

TEST WELLS- A well constructed for the purpose of obtaining information on groundwater or hydrogeologic conditions including yield and quality.

WATER WELL COMPLETION REPORT- The latest version of the Well Driller Log Form 8700-FM-TGS0015 or its replacement.

WATER WELL DRILLER- Any person licensed by the Commonwealth of PA performing or in responsible charge of drilling, altering or repairing a water well.

WELL- 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, acquisition or artificial recharge of groundwater. This includes but is not limited to test wells, test borings, geothermal and monitoring wells, in addition to wells to be utilized as individual water supplies.

WELL OWNER- Any person who owns land on which a well has been drilled.

ARTICLE B PERMIT PROCEDURE

Section 17-5 Purpose

To ensure all permit-required water supplies and boreholes protect public health and welfare, MCHD shall approve the location, construction and testing, and operation for said wells.

GENERAL

- a. It shall be unlawful to install or modify an individual water supply well, irrigation well or geothermal well without first obtaining a permit from MCHD. Permits for wells serving new construction must be obtained prior to the beginning of construction of any building(s) to be served by the well. Each individual water supply and irrigation well permit will be issued upon a two (2) part approval system which consists of a Permit to Construct and an Approval to Operate.
- b. Monitoring, test and agricultural wells do not require permits. However, if a permit is issued for such a well, all permitting procedures must be met. A copy of the well driller log must be submitted to MCHD upon well construction completion.
- c. All permit-required wells shall be constructed by a PADCNR-licensed water well driller or an IGSHPA accredited geothermal system installer, if applicable. The applicant and/or well driller/installer is responsible for ensuring maintenance of all isolation distances set forth in Section 17-7 of this Chapter. It is recommended and may be required that the applicant have a driller, engineer or other qualified professional certify all isolation distances to required landmarks are met and accurate. The applicant and/or appointed representative shall accept full responsibility for any conditions associated with discovery of sewage system components or other potential sources of pollution not determined during the initial investigation. The applicant and/or appointed representative shall solely bear any and/or all expenses associated with remedying the

encroachment.

- d. All individual water supplies and irrigation wells shall be constructed **according to MCHD's Individual Water Supply Well Construction Specifications** unless any such specification is expressly waived in writing by MCHD. Said waiver may be granted upon the applicant demonstrating an inability to comply with the specifications.
- e. The PADCNR-licensed well driller/system installer must adhere to all other requirements set forth in this Chapter unless granted a waiver by MCHD.

PERMIT TO CONSTRUCT

- f. All permit-required well applications must be filed on behalf of the current property owner or equitable owner. All permit applications for new construction must be completed in the same name as the valid on-lot sewage disposal permit, if applicable. If applicable, no permit will be issued until the sewage facilities planning module is approved by PADEP, unless a waiver is granted by MCHD.
- g. All permit-required well applications must be submitted with an appropriate check or money order made payable to the Treasurer of Montgomery County for MCHD to review the application.
- h. All permit-required well applications must be completed and include the following:
 - i. Applicant name and signature, address, and telephone number.
 - ii. Site address, subdivision name, lot number, and municipality.
 - iii. Driller name, PADCNR license number and telephone number.
 - iv. Type of construction.
 - v. Intended use.
 - vi. Type of sewage disposal.
 - vii. Tax parcel number.
 - viii. Signed and notarized agent authorization form.
 - ix. Sewage facilities planning module approval letter, if applicable.

- x. Plot plan to include:
 - aa. Property lines, lot dimensions, slope direction, adjacent streets, reference to North.
 - bb. Marked distances from the proposed well to any existing and proposed water supplies, buildings, driveways, parking areas, two (2) non-parallel property lines, retention areas, surface waters, and chemical/fuel storage tanks, if applicable, and other landmarks requiring compliance with isolation distances set forth under Section 17-7 of this Chapter.
 - cc. Marked distances from the proposed well to any existing and proposed sewage system components within 125 feet on said property and all neighboring properties. All above sewage system components must be clearly identifiable on the site at time of MCHD inspection.
- i. Applications for permit-required well permits shall be issued or denied within seven (7) working days of receipt of an administratively complete well application. MCHD shall notify applicants within five (5) working days if an application is determined to be incomplete or containing information unable to be verified. Upon receipt of the supplemental or amendatory information, MCHD has an additional seven (7) working days to issue or deny the permit.
- j. If construction of the permit-required well does not commence within three (3) years from issuance date, said permit shall expire.
- k. If an emergency well condition exists, MCHD may give a verbal Permit to Construct an individual water supply well. This Permit will be voided within twenty-four (24) hours unless the following conditions are met:
 - i. A complete Individual Water Supply Well Application is submitted to MCHD.
 - ii. The drilling process has commenced.

APPROVAL TO OPERATE

- l. Upon completion of the individual water supply well or irrigation well, a well pump test must be performed and the following information submitted to MCHD:

- i. Depth of well, pump intake, and static water level (undisturbed for twenty-four (24) hours).
- ii. The measured water level after pumping the well at four (4) gallons per minute (gpm) for two (2) hours.
- iii. Water quality test results on water collected at the end of the pump test.
- ~~m.~~ Laboratory analysis from a PADEP certified laboratory of the individual water supply well must be performed for all parameters required pursuant to Section 17-10 (b) and Section 17-10 (c) of this Chapter.
- n. An Approval to Operate an individual water supply system or irrigation well shall be issued or denied within seven (7) working days upon receipt of a complete submission of the information referenced in 5-11 and 5-12 and, if applicable,
 - i. Description of any treatment system installed pursuant to Section 17-11, of this Chapter.
 - ii. Water Well Completion Report.
 - iii. Additional information as required by MCHD.

GENERAL

Any permit or approval issued pursuant to this Chapter may be revoked or modified by MCHD for any of the following reasons:

- i. A new condition has been identified which will affect the quality of an individual water supply well.
- ii. Information material to issuance of the permit or approval has been falsified.
- iii. The applicant has violated the provisions of this Chapter.
- iv. The on-lot sewage permit has been revoked.

Section 17-6 Inspection procedure for individual water supply or irrigation well

- a. Twenty-four (24) hours notice must be given to MCHD prior to commencement of individual water supply or irrigation well installation.

- b. Any relocation of the well beyond ten (10) feet from the permitted location must be submitted in writing and subsequently approved by MCHD prior to drilling.
- c. If MCHD is not on-site for the grouting procedure, all grouting information must be submitted to MCHD within twenty-four (24) hours.
- d. All sewage system component locations within one hundred twenty-five (125) feet of the proposed well on said property and all neighboring properties must be clearly identifiable prior to commencement of well drilling. Failure to comply upon time of MCHD inspection will result in termination of drilling activities.

Inspection procedure for geothermal well system

- e. Prior to geothermal well construction, a site meeting with MCHD will be required to layout the proposed design under actual field conditions. Any changes required based on the field design must be addressed by the designing firm before construction begins.
- f. The boreholes shall be located, drilled and completed in a manner which protects the borehole structure from damage from surface activities or natural occurrences.
- g. Casings are not required, but may be necessary to keep the borehole open during drilling. The annular space must be properly grouted for any casing remaining in place.
- h. The geothermal well vertical boreholes shall be grouted using an appropriate grout from the bottom of the well to the top in accordance with MCHD’s Individual Water Supply Well Construction Specifications.

Section 17-7 Isolation Distances

Minimum isolation distances shall be maintained from the proposed individual water supply, irrigation well, and open-loop geothermal well to the facilities listed below. Closed-loop geothermal well installations require one half the isolation distances listed below at a minimum.

<u>SOURCE OF POLLUTION</u>	<u>MINIMUM DISTANCE</u>
Delineated wetlands or floodplains.	25 feet
Lakes, ponds, streams or other	25 feet

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surface waters.	
Storm drains, retention basins, storm water stabilization ponds, rainwater pits.	25 feet
Community spray irrigation site: Sewage sludge and septage disposal sites.	100 feet
Farm silos, barnyards, manure pits or tanks or other storage areas of animal manure.	200 feet
Subsurface sewage absorption areas, elevated sand mounds, cesspools, sewage seepage pits, single family spray irrigation system, etc.	100 feet
Septic tanks, aerobic tanks, sewage pump tanks, holding tanks.	50 feet
Gravity sewer lines and drains carrying domestic sewage or industrial waste (unless item below applies).	50 feet
Gravity sewer lines and drains using cast iron pipe with watertight lead caulked or neoprene gasketed joints, or Schedule 40 polyvinylchloride (PVC) pipe with solvent welded joints.	10 feet
Sewer lines and drains carrying domestic sewage or industrial waste under pressure (except welded steel pipe or concrete encased pipe).	50 feet
Commercial preparation area or storage area of hazardous spray materials, fertilizers or chemicals; salt piles.	300 feet

Other potential sources of pollution as determined by MCHD.

As approved

Any proposed deviation or modification from the above isolation distances must be submitted in writing to MCHD stating reasons for such deviation or modification. Upon review of the material, a waiver may be granted. Additional conditions may be required prior to permit issuance. These conditions may also apply to isolation distances unable to be determined by the applicant.

Section 17-8 Abandoned Wells

- a. All abandoned wells must be filled and sealed according to the PADEP/DCNR Water Well Abandonment Guidelines. A copy of the PADEP/DCNR Water Well Abandonment form shall be submitted to MCHD within thirty (30) days of abandonment.
- b. If applicant/homeowner chooses not to abandon the well, a non-abandonment declaration must be signed and submitted to MCHD within thirty (30) days.
- c. Abandonment procedures may be subject to MCHD inspection.

Section 17-9 Disinfection

Following completion of construction of an individual water supply, or irrigation well and installation of the pumping equipment, or alterations, or maintenance work, the well shall be pumped continuously until the water discharge is clear. The well, pump, piping system, and other fixtures shall be disinfected according to MCHD Individual Water Supply Well Construction Specifications.

Section 17-10 Water Quality

- a. All water analyses must be conducted by a PADEP certified laboratory.
- b. All individual water supply systems, irrigation wells, and open loop geothermal withdrawal wells must meet current PADEP drinking water standards for the following required parameters:

<u>PARAMETER</u>	<u>*CURRENT PADEP LIMIT</u>
Total Coliform	0 cfu/100ml
pH	6.5 to 8.5
Nitrate as N	10 mg/l
Arsenic	0.010 mg/l
Volatile Organic Compounds	

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Benzene	0.005 mg/l
Carbon Tetrachloride	0.005 mg/l
o-Dichlorobenzene	0.6 mg/l
para-Dichlorobenzene	0.075 mg/l
1, 2 - Dichloroethane	0.005 mg/l
1, 1 - Dichloroethylene	0.007 mg/l
cis-1, 2 - Dichloroethylene	0.07 mg/l
trans-1, 2 - Dichloroethylene	0.1 mg/l
Dichloromethane	0.005 mg/l
1, 2 - Dichloropropane	0.005 mg/l
Ethylbenzene	0.7 mg/l
Monochlorobenzene	0.1 mg/l
Styrene	0.1 mg/l
Tetrachloroethylene	0.005 mg/l
Toluene	1 mg/l
1, 2, 4 - Trichlorobenzene	0.07 mg/l
1, 1, 1 - Trichloroethane	0.2 mg/l
1, 1, 2 - Trichloroethane	0.005 mg/l
Trichloroethylene	0.005 mg/l
Vinyl Chloride	0.002 mg/l
Xylenes (total)	10 mg/l

To further ensure a potable water supply, adherence to the following parameters is recommended, unless required under Section 17-10 (c) of this Chapter:

<u>PARAMETER</u>	<u>*CURRENT PADEP LIMIT</u>	
Chlorides	250	mg/l
Total Dissolved Solids (TDS)	500	mg/l
Iron	0.3	mg/l
Manganese	0.05	mg/l

mg/l = milligrams/liter
 cfu = colony forming units
 ml = milliliters

*Limits subject to change per state and/or federal law.

- c. Analyses for additional parameters may be required if MCHD has reason to suspect that substances may be present in the water in amounts that could affect potability. All individual water supply systems must meet PADEP drinking water standards for such parameters.

Section 17-11 Treatment

- a. If total coliform, nitrates, arsenic or VOCs are not within the specified standards noted in Section 17-10 (b) of this Chapter, treatment of the individual water supply, irrigation well, and open loop geothermal withdrawal well is required to achieve compliance with the standards.
- b. If iron, manganese, chloride or Total Dissolved Solids (TDS) are in excess of the above listed standards in Section 17-10 (b), or pH is not within the listed range, treatment is recommended.
- c. Additional treatment of the water may be required if MCHD has reason to suspect substances may be present in the water in amounts that could affect potability.