OHIO ADMINISTRATIVE CODE

CHAPTER 3701-28

PRIVATE WATER SYSTEMS RULES

OHIO DEPARTMENT OF HEALTH
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OHIO DEPARTMENT OF HEALTH
OHIO ADMINISTRATIVE CODE CHAPTER 3701-28
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3701-28-01 Definitions.

(A) "Alter or alteration" means to make a change in the type of construction or configuration of a private water system, including without limitation:

(1) Adding or changing the design of continuous disinfection, water treatment, methane treatment device, or a cyst reduction filter;

(2) Converting a well with a buried seal to a well with a pitless adapter or well house installation;

(3) Extending a distribution system to one or more dwellings or buildings including extending a distribution system to a new building or dwelling that is a reconstructed replacement for a building or dwelling that has been razed or destroyed;

(4) Except when sealing or decommissioning a private water system, disconnecting the water source from a service line going to one or more service connections including when connecting to a public water supply;

(5) Converting a well that uses a well pit to a well with a pitless adapter or well house type of construction; extending casing that currently terminates below ground to extend above ground; deepening a well; or repairing, extending, or replacing any portion of the inside or outside casing or wall, or the walls of a spring or cistern, that extend below ground level;

(6) Conversion of a permitted test well to a private water system.

(B) "ANSI" means the American national standards institute.

(C) "API" means the American petroleum institute.

(D) "Annular space" means the space between a borehole wall and the casing or casing coupling of a well, the space between a casing pipe and liner pipe, the space between a temporary casing and a permanent casing~~.~~, or strings of nested casing.

(E) "Aquifer" means a consolidated or unconsolidated geologic formation or series of formations that are hydraulically interconnected and that have the ability to receive, store, or transmit water.

(F) "Atmospheric break" means an unobstructed vertical separation in the open air between the lowest opening of any pipe or faucet supplying water to or draining from a holding tank, plumbing fixture, or other device and the highest flood level of the receiving drain or area.

(G) "ASTM" means the American society for testing and materials.

(H) "Backflow prevention device" means any device, method, or type of construction to prevent backflow of water, liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source other than its intended source. Any device used as a backflow prevention device must contain a dual check valve assembly meeting the requirements of American society of sanitary engineering (ASSE) standards 1013, 1015 or 1024 and/or an air gap.

(1) "Dual check valve" means a backflow prevention device consisting of two spring-loaded, independently

acting check valves.

(2) "Air gap" is a method of creating a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An approved air gap shall be at least twice the diameter of the supply pipe measured vertically above the overflow rim of the vessel, but, never less than one half inch.

(I) "Bentonite" means a plastic, colloidal clay which has an extensive ability to absorb water and swell in volume, and which is composed predominantly of sodium montmorillonite.

(J) "Bentonite grout" means a slurry of bentonite and water which has a minimum solids concentration of twenty per cent or bentonite in a pelletized, granular, or coarse grade form.

(K) "Board of health" means the board of health of a city or general health district created by or under the authority of Chapter 3709. of the Revised Code, the authority having the duties of a board of health in any city as authorized under section 3709.05 of the Revised Code, or the authorized representative of such a board or authority.

(L) "Building" means any structure as defined in section 3781.06 of the Revised Code.

(M) "Casing" means an impervious watertight durable primary or secondary pipe that is placed in a well and is used to prevent the walls from caving, exclude surface drainage, undesirable water or other fluids, or unwanted or harmful materials from a well.

(1) "Primary casing" means casing that is permanently grouted in place in the upper most portion of the borehole and may terminate below or extend above the natural ground surface.

(2) "Secondary casing" means a second string of smaller diameter casing that is permanently installed within the primary casing, is grouted in place, and may terminate below or extend above the natural ground surface.

(3) "Temporary casing" means durable pipe or casing placed or driven from the surface into a borehole to maintain an open annular space around the permanent casing during the construction of a well. If temporary casing is subsequently left in place it becomes permanent casing.

(N) "CFU" means the number of bacteria colony forming units, or colonies, or individual bacteria that can be counted or estimated in a membrane filter, and for the purposes of this chapter, is used interchangeably with MPN for determination of an estimation of a bacterial colony count.

(O) "Cistern" or "rainwater cistern" means a private water system that uses rainwater collected from a roof or other rain collection device as a source of water.

(P) "Coarse grade bentonite" means bentonite that has been crushed to a size of three-eighths to three-quarters of an inch.

(Q) "Coliform bacteria" means all of the aerobic and facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within forty-eight hours at thirty-five degrees Celsius.

(R) "Conductor pipe" or "tremie pipe" means a pipe of sufficient diameter used to place approved materials into the annular space of a well during construction, alteration, or sealing.

(S) "Confined aquifer" means an aquifer bounded above and below by beds of distinctly lower permeability than that of the aquifer itself, and which contains ground water under pressure greater than that of the atmosphere.

(T) "Confluent growth" means a continuous bacterial growth, covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

(U) "Consolidated" means lithified geologic formation materials. In Ohio these materials constitute formations such as sandstone, dolomite, limestone, shale, siltstone and coal.

(V) "Construct" for the purposes of this chapter means to newly create a private water system utilizing one or more of the acceptable water sources (e.g., water well, spring, pond, rainwater cistern, hauled water storage tank). Construct also includes replacing or combining of an existing private water system source with a new private water system source.

(W) "Contact tank" means a retention tank used in the continuous disinfection system to hold water in order to provide adequate time for a chemical disinfectant to achieve the desired CT value.

(X) "Contaminant" means any biological, chemical, physical, or radiological constituent in water that is or may become injurious to public health, safety or welfare.

(Y) "Contamination" means the presence of any contaminant into the private water system or ground water which renders the water unfit for human consumption.

(Z) "Conversion" means a water source or a water system not previously classified as a private water system (e.g., agricultural wells, springs and ponds, public water supplies being delisted as public by the Ohio environmental protection agency) that is being converted into a private water system in compliance with this chapter. A conversion is considered new construction.

(AA) "Continuous disinfection" means point of entry treatment processes that include chlorination, iodination, ozonation, and ultraviolet light to destroy or inactivate disease causing microorganisms to make the source water acceptable for human consumption.

(BB) "Cross connection" means any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other gas, water, or other liquid of unknown or questionable quality or safety, whereby water may flow from one system to the other, the direction of flow depending on the pressure differential between the two systems.

(CC) "CT value" means the contact time multiplied by the free disinfectant residual required to achieve adequate disinfection.

(DD) "Cyst reduction" means the treatment process of filtration or ultraviolet light disinfection to reduce or destroy protozoa and their cyst, including but not limited to giardia species, cryptosporidia species, and amebic species to a log four number.

(EE) "Decommission" means the procedures required in this chapter to take a private water system, other than a well, out of service as a private water system, including but not limited to disconnecting a hauled water

storage tank, rainwater cistern, pond, or spring water source from having the ability to provide water through the potable water distribution system.

(FF) "Department" means the department of health of the state of Ohio.

(GG) "Develop or development" means to physically remove fine materials and sediment generated during construction of the well, by means including but not limited to surging, air surging or lifting, over pumping, backwashing, high velocity jetting or bailing of the completed well.

(HH) "Director or director of health" means the director of the department of health of the state of Ohio and includes any authorized representative of the director.

(II) "Disinfect or disinfection" means the addition or use of chlorine or other disinfectant or process to the private water system to neutralize or destroy the growth of harmful bacteria.

(JJ) "Diversion ditch" means a shallow ditch, swale, earthen embankment, or other excavation to divert surface water away from a water source or supply.

(KK) "Drive point well" means a small diameter well that has a 1.25 inch to two inch diameter pipe constructed in unconsolidated material using a hardened drive point and screen. For the purposes of this definition, drive point well also includes, but is not limited to, sand wells, points wells, and well points.

(LL) "Drive shoe" means a manufactured hardened steel collar with a beveled cutting edge attached to the lower end of a steel casing by threading or welding to protect the casing as it is driven.

(MM) "Dry hole" means an open borehole or cased borehole that does not produce water in sufficient quantity and that can not be modified with a low yield pump and storage reservoir, or combined with another water source to produce water for the intended use.

(NN) "Dwelling unit or house" means the place which is occupied by a person or persons as their primary residence or secondary seasonal residence.

(OO) "Filter" means non-chemical water treatment devices designed for point-of-entry removal of a variety of contaminants by means of mechanical filtration or by adsorption based on the following filter types;

(1) "Cartridge filter" means a replaceable in-line nominal or absolute device designed to remove small particles and/or microorganisms as defined below;

(a) "Nominal filter" is a filter capable of removing approximately eighty-five per cent of particles of the designed pore size.

(b) "Absolute filter" is a filter capable of removing 99.95 per cent of particles of the designed pore size.

(2) "Particle filter" is a nominal or absolute device designed to remove small particles and microorganisms;

(3) "Granular activated carbon or GAC filter" is a device containing activated carbon to remove certain chemicals dissolved in water by adsorbing those chemicals to the granular carbon in the filter; or

(4) "Cyst reduction filter" means an absolute one micron or smaller filter that meets ANSI/NSF standard 53 or an equivalent standard that achieves a 99.95 per cent protozoan cyst reduction.

(PP) "Floodplain or special flood hazard area" means the area adjoining any river, stream, watercourse, or lake subject to a one percent or greater chance of flooding in any given year. Special flood hazard areas are designated by the federal emergency management agency on flood insurance rate maps, flood insurance studies, flood boundary and floodway maps and flood hazard boundary maps as zones A, AE, AH, AO, A1-30, and A99. Special flood hazard areas may also refer to areas that are flood prone and designated from other federal state or local sources of data including but not limited to historical flood information reflecting high water marks, previous flood inundation areas, and flood prone soils associated with a watercourse.

(QQ) "Floodway" means the channel of a river or other watercourse and the adjacent land areas that have been reserved in order to pass the base flood discharge. A floodway is typically determined through a hydraulic and hydrologic engineering analysis such that the cumulative increase in the water surface elevation of the base flood discharge is no more than a designated height. The floodway is an extremely hazardous area, and is usually characterized by any of the following: moderate to high velocity flood waters, high potential for debris and projectile impacts, and moderate to high erosion forces.

(RR) "Formation" means a geologic unit distinguished from adjacent geologic units by a common characteristic.

(SS) "Formation stabilizer, gravel pack, or filter pack" means siliceous, well-rounded, clean and uniform sand or gravel that is free of contaminants and foreign matter, properly sized, washed and disinfected and placed between the borehole wall and the well screen to prevent formation material from entering through the screen and to stabilize the borehole.

(TT) "Granular bentonite" means bentonite that has been processed to particles ranging in size from eight to thirty mesh.

(UU) "Ground water" means all water occurring in an aquifer.

(VV) "Ground water under the influence of surface water" has the same definition as "surface water".

(WW) "Grout" means the materials set forth in or approved under paragraphs (F), (G), and (H) of rule 3701-28-09 of the Administrative Code.

(XX) "Grouting or grout placement" means any of the following methods of placing grout into a well or the annular space of a well:

(1) "Pressure grouting" means any of the following methods of placing a grout slurry into a well or the annular space of a well

(a) "Conductor pipe-pumped" means pressure grouting with a conductor pipe that is lowered to the bottom of the annular space being grouted with grout pumped from the bottom up in a continuous operation. The end of the conductor pipe remains submerged in the previously placed grout and full of grout at all times.

(b) "Well seal with conductor pipe-pumped" means pressure grouting by setting the permanent casing just above the bottom of the borehole and filling the casing and annular space with water, drilling mud or a bentonite slurry. Conductor pipe is then set inside the casing to the bottom of the borehole either through a watertight well seal or packer. Grout is pumped into the annular space displacing all

other fluids in the annular space and the permanent casing set in place.

(c) "Grout displacement method" means placing a calculated volume of grout sufficient to fill the annular space plus fifteen percent extra grout into the borehole through a conductor pipe. A drillable plug is then attached to the bottom of the permanent casing and the permanent casing is lowered through the grout into the borehole allowing the grout to be forced up the annular space. If necessary, pressure is applied to the top of the casing to hold it in place until the grout is set.

(d) "Grout shoe-continuous injection method" means pressure grouting by using a grout shoe with a check valve installed in the bottom of the permanent well casing and connected by a conductor pipe to the surface through which grout is pumped until the entire annular space is filled with grout. The conductor pipe is removed, the permanent casing set at the bottom of the borehole, and the grout allowed to set until cured.

(e) "Halliburton method" means pressure grouting by filling the casing and annular space with water, mud or a bentonite slurry and using a single plug or double plugs inserted watertight into the bottom or top of the permanent casing through which a calculated volume of grout sufficient to fill the annular space and the bottom ten feet of casing is pumped with a conductor pipe through a watertight seal. The grout is then displaced by using water pressure or pressure from the drill stem to advance the plug or plugs. Pressure is maintained in the casing until the grout has set.

(2) "Dry pour" means the placement of coarse grade bentonite as specified in paragraph (G) of rule 3701-28-09 of the Administrative Code into the annular space of a well or to seal a well by pouring, using methods specified in rules 3701-28-10 and 3701-28-17 of the Administrative Code.

(3) "Dry Driven" means the continuous placement of dry granular bentonite grout around steel casing as the casing is being driven using a cable tool, driven casing hammer or any other method where permanent steel casing is driven in accordance with paragraph (I) of rule 3701-28-10 of the Administrative Code.

(YY) "Hauled water system" means any private water system that uses water from an approved public water source delivered by a registered water hauler as the source of water.

(ZZ) "Hauled water storage tank" means any tank used to store potable water for use as a private water supply delivered by a registered water hauler from an approved public water source.

(AAA) "Health district" means a city or general health district as created by or under the authority of section 3709.01 of the Revised Code.

(BBB) "High background count" or "HBC" means that the total number of bacterial colonies exceeds two hundred on a forty-seven millimeter diameter membrane filter used for coliform detection.

(CCC) "Human consumption" means the ingestion or absorption of water or water vapor as the result of drinking, cooking, dishwashing, hand washing, bathing, showering, oral hygiene, or other domestic uses such as flushing toilets and doing laundry.

(DDD) "Hydrostatic head" means the height of the free surface of a body of water above a given subsurface point or a reflection of the ground water level plus the pressure head.

(EEE) "Land application area" means any of the following:

(1) A land application field, staging, stockpiling, or field storage area for domestic septage as defined in

paragraph (CC) of rule 3701-29-01 of the Administrative Code;

(2) A land application field, staging, stockpiling, or field storage area for domestic septage as defined in paragraph (A) of rule 3745-40-01 of the Administrative Code;

(3) A land application field, staging, stockpiling, or field storage area as defined in rule 901:10-1-01 of the Administrative Code; or,

(4) A wastewater land application area as defined in paragraph (A) of rule 3745-42-13 of the Administrative Code.

(FFF) "Liner" means a pipe designed to be removed that meets the specifications of paragraph (B) of rule 3701-28-09 of the Administrative Code and is installed within a permanent well casing and may extend into the borehole to support the walls of the borehole through consolidated formations in the event of a collapse.

(GGG) "Maximum contaminant level" or "MCL" means the standards established by the United States environmental protection agency for the maximum permissible level of a substance allowed in drinking water delivered to the consumer from a public water system under the "Safe Drinking Water Act", 88 Stat. 1660 (1974), 42 U.S.C. 300f (1996). For the purposes of this chapter, MCL also includes health based advisory levels and standards developed by the centers for disease control and prevention and the agency for toxic substances and disease registry.

(HHH) "MPN" means the most probable number is a statistical method to determine total coliform or E. coli counts in a one hundred milliliter water sample. For the purposes of this chapter, MPN is used interchangeably with CFU for determination of an estimation of a bacterial colony count.

(III) "NSF" means the national sanitation foundation.

(JJJ) "Nominal diameter or nominal pipe size" means the inside diameter of pipe for pipe sizes one-inch through twelve inches in diameter and means the outside pipe diameter for pipe sizes greater than twelve inches in diameter.

(KKK) "One hundred year flood" means a flood having a one percent chance of being equaled or exceeded in any given year.

(LLL) "One hundred year floodplain" means a portion of a designated floodplain that may be inundated by a one hundred year flood.

(MMM) "Oversized or enlarged borehole" means a borehole larger in diameter than the well casing pipe.

(NNN) "Packer" means a rubber or inflatable device used to temporarily or permanently seal off a portion of the borehole, annular space or well casing.

(OOO) "Pathogenic microorganism" means water borne pathogens as determined by the director to be either a:

(1) "Primary pathogenic microorganism" which can cause disease in otherwise healthy people with exposure and dose and includes but is not limited to escherichia coli, and indicator organisms such as enterococci or coliphage;

(2) "Opportunistic pathogen" is a commonly occurring microorganism found in water wells or a rare

microorganism that does not normally cause disease in otherwise healthy people but can cause disease in sensitive populations including immune compromised individuals, infants, and the elderly.

(PPP) "Peak demand" means the maximum potential water usage from the water source, based on an estimated seventy-five gallons per person per day or the estimated number of usable water fixtures running at full flow or the maximum pump capacity, if the pump limits the potential peak demand.

(QQQ) "Person" includes the state, a political subdivision, individual, corporation, business trust, estate, trust, partnership, association, or any legal entity defined as a person under section 1.59 of the Revised Code.

(RRR) "Pitless adapter" means an assembly of parts which permits water to pass through the casing or extension 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 therein from surface or near surface contaminants.

(SSS) "Pitless unit" means an assembly which extends the upper end of casing to above grade and prevents the entrance of contaminants into the well, to conduct water from the well, to protect water from freezing or extremes of temperature and to allow access to the well and components of the pumping equipment.

(TTT) "Point of discharge" means the jurisdictional end of a private water system where the water from a private water system can be sampled immediately before it enters the plumbing jurisdiction. The point of discharge includes the sampling faucet immediately after the pressure tank where no required treatment exists. Where continuous disinfection or water treatment is required on the private water system the point of discharge is the sampling faucet immediately after the treatment equipment.

(UUU) "Pond" means a private water system that is constructed for the purpose of supplying potable water to one single-family dwelling and the entire watershed is under the complete control of the pond owner.

(VVV) "Potable water" means water which meets the water quality standards of paragraph (N) of rule 3701-28-04 of the Administrative Code and is satisfactory for all drinking, culinary, and domestic purposes; including flushing toilets and doing laundry.

(WWW) "Powdered bentonite" means sodium bentonite ranging in size from eighty to three hundred twenty-five mesh with or without polymer added used in drilling fluid.

(XXX) "Private water system" means any water system, other than a public water supply system, for the provision of water for human consumption, if the system has fewer than fifteen service connections and does not regularly serve an average of at least twenty-five individuals daily at least sixty days each year. A private water system includes the following:

(1) Any well, spring, cistern, pond, or hauled water system;

(2) Any equipment for the collection, distribution, transportation, filtration, disinfection, treatment, or storage of water extending from and including the source of the water to the point of discharge into the plumbing distribution system;

(3) To the point of discharge from the water pump where no pressure tank or other storage vessel is present;

(4) To the point where the distribution line enters the foundation of the building or dwelling, where the pressure tank is outside of the building or dwelling, and no other treatment equipment is required;

(5) In the case of multiple service connections serving more than one dwelling or building:

(a) To the point of discharge from each service connection where the service connection enters the foundation of the dwelling or building; or

(b) If water treatment is required to be installed at any of the dwellings or buildings, to the point of discharge from the required water treatment into the plumbing distribution system;

(6) A private water system does not include the water service line extending from the point of discharge to a structure except when the water service line extends to another dwelling or building.

(7) "Single family dwelling private water system" means a private water system source serving only one dwelling

(8) "Non single family private water system" means a private water system source serving more than one family dwelling, a multi-unit dwelling, small manufactured home park, or transient locations including but not limited to, a small church, small business, or bed- and- breakfast that does not meet the definition of a public water system.

(9) Public water systems that are defined as exempt in section 6109.02 of the Revised Code and use hauled water storage tanks for the only source of water; or

(10) Auxiliary water sources that enter a structure to supplement flushing toilets or laundry washing;

(YYY) "Private water systems contractor" or "contractor" means a person who is registered as a private water systems contractor in accordance with rule 3701-28-18 of the Administrative Code that constructs or develops a well for use as or as a part of a private water system or otherwise constructs a private water system, installs pumping equipment for a private water system, alters a private water system, services or maintains any part of a private water system, repairs a private water system, seals a private water system, or performs any combination of those activities for hire; or, who inspects or evaluates private water systems for hire.

(ZZZ) "Public water system" has the same meaning as in division (A) of section 6109.01 of the Revised Code.

(AAAA) "Registered contractor,"~~,~~ "registered water systems contractor" or "registrant" means a person who is registered as a water systems contractor in accordance with division (B)~~(~~(3) of section 3701.344 of the Revised Code and Chapter 3701-28 of the Administrative Code.

(BBBB) "Repair" means the act of fixing or replacing substandard or damaged devices to restore a private water system or component to proper working condition that does not require a permit. Repair also means any work performed on a private water system for the purpose of servicing or replacing with a like component such as replacing a submersible pump with a submersible pump and changing from a jet pump to a submersible pump or submersible pump to a jet pump or other configuration of pumping equipment. Repair

includes, without limitation, servicing or replacing pumps or pumping equipment, filtration or disinfection equipment, storage or pressure tanks, belts, couplings, switches, or fuses, ~~and~~ all well caps, and extending casing that currently terminates at or above the surface of the ground is considered a repair. Repair does not include an alteration to the casing or wall of a water well or the walls of a spring box, hauled water storage tank, or cistern.

(CCCC) "Right-of-way" means a general term denoting land, property, or the interest therein, usually in the configuration of a strip, acquired for or devoted to transportation purposes. When used in this context, right-of-way includes the roadway, shoulders or berm, ditch, and slopes extending to the right-of-way limits under the control of the state or local authority.

(DDDD) "Saline water" is water with total dissolved solids (TDS) between one thousand milligrams per liter and thirty-five thousand milligrams per liter or specific conductivity between one thousand five hundred micro siemens per centimeter and fifty-four thousand micro siemens per centimeter obtain by multiplying the TDS by 1.5 where;

(1) Slightly saline water has TDS from one thousand milligrams per liter to three thousand milligrams per liter or multiplied by 1.5 for micro siemens per centimeter;

(2) Moderately saline water has TDS from three thousand milligrams per liter to ten thousand milligrams per liter or multiplied by 1.5 for micro siemens per centimeter;

(3) Highly saline water has TDS from ten thousand milligrams per liter to thirty-five thousand milligrams per liter or multiplied by 1.5 for micro siemens per centimeter;

(4) Brine water has a TDS greater than thirty-five thousand milligrams per liter or greater than thirty-five thousand milligrams per liter multiplied by 1.5 for micro siemens per centimeter.

(EEEE) "Seal" means to close or properly abandon a well, or to close a portion of a well or the annular space of a well.

(FFFF) "Service and maintenance" means all routine or periodic action taken to assure that an existing private water system operates as it was intended including the in-place correction, cleaning, or replacement of damaged or worn out devices with approved devices. Service and maintenance shall include the replacement of mechanical devices such as pumps in treatment trains; replacement of broken device lids, risers, and baffles; the installation or cleaning of an outlet filter; and all other actions not defined as an alteration or replacement, as determined by the department. Service and maintenance does not include the periodic chlorination of a private water system well, spring box, cistern, hauled water storage tank or other water retention tank by the private water system owner when the private water system services a single family dwelling that is occupied by the system owner.

(GGGG) "Service connection" means that point at which the private water system enters any structure used for agricultural purposes, building, or dwelling or camp or multiple housing unit. Where no structure is used for agricultural purposes, no building, or no dwelling exists, each water outlet, including yard hydrants, shall be considered a service connection.

(HHHH) "Service contract" means a contract between a private water system owner and a private water system

contractor for the routine service and maintenance required to ensure proper and optimum functioning of any component of the water treatment system.

(IIII) "Service line," "water service line," "water service pipe," or "water distribution pipe" means the piping that carries water from a private water system water source to the service connection(s) and the other components of the private water system to the point of discharge.

(JJJJ) "Shale trap" or "shale basket" means a permanently placed conical shaped rubber packer that is attached to the bottom of the casing to seal the annular space and prevent grout from entering the open borehole or screened area of the well.

(KKKK) "Source" or "water source" means the site from which water is obtained for the purpose of supplying water to a private water system. Source includes a well, pond, spring, cistern tank, hauled water storage tank, water hauler. Surface water including, but not limited to, rivers, streams, creeks, lakes, quarries, and drainage ditches shall not be a water source for a private water system.

(LLLL) "Spring" means a private water system where ground water flows naturally from rock or soil onto the land surface or into a body of water or a shallow aquifer that is intercepted at a depth of ten feet or less.

(MMMM) "Spring Box" means an outside reservoir tank used to store water from a private water system spring discharge prior to the water entering a structure for water treatment.

(NNNN) "Standard weight pipe" or "standard weight" means a class of pipe weight designated by ANSI which is equivalent to schedule forty for nominal pipe sizes ranging from 1/8 inch to ten inches in diameter, and varies with pipe dimension for greater pipe diameters.

(OOOO) "Static water level" means the level of the water when measured from the established ground surface to the water surface in a well that is neither being pumped nor under the influence of pumping, or that is flowing under artesian pressure.

(PPPP) "Surface water" means either of the following:

(1) All water which is open to the atmosphere and subject to surface runoff; or

(2) Ground water under the direct influence of surface water or subject to surface runoff, as indicated by:

(a) Significant occurrence of insects or other macroorganisms;

(b) The presence of biological contamination significant to human health;

(c) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions~~.~~; or

(d) The presence of rapid pathways from the surface to the underground water supply or compromised hyrdogeologic barriers have been identified in the area, including but not limited to, a well located in bedrock where the bedrock is directly connected to surface water through fractures or solution features.

(QQQQ) "Tank" means any container for the storage or treatment of water.

(RRRR) "Temporary hauled water storage tank" mean any tank used to store potable water for use as a private water supply delivered by a registered water hauler from an approved public water source on a temporary or emergency basis and is not intended to be a permanent source of water on a property. "Temporary hauled water storage tank" does not include bottled water.

(SSSS) "Turbidity" means having sediment or particles stirred up or suspended in the water, reducing the clarity. Turbidity is an expression of the optical properties of a sample that causes light rays to be scattered and absorbed rather than transmitted in straight lines through the sample. Turbidity is caused by the presence of suspended or dissolved matter such as clay, silt, minerals, and microorganisms measured using nephelometric turbidity units (NTU).

(TTTT) "Test well" or "test hole" means any excavation, regardless of design or method of construction, done for the purpose of determining the most suitable site for removing ground water from an aquifer for use in a private water system and is regarded as new well construction.

(UUUU) "Thermoplastic" means polyvinyl chloride plastic (PVC) or acrylonitrile butadiene styrene (ABS).

(VVVV) "Total dissolved solids (TDS)" is a measure of all constituents dissolved in water. The inorganic anions dissolved in water includes, but is not limited to carbonates, chlorides, sulfates and nitrates. The inorganic cations include, but are not limited to sodium, potassium, calcium and magnesium.

(WWWW) "Unconsolidated" means geologic formations composed of materials that are loose and not lithified.

(XXXX) "Water hauler" means a contractor that is in the business of hauling potable water from a public water supply to a private water system that includes on-site hauled water tanks, temporary or emergency hauled water storage tanks, cisterns, and supplemental water reservoirs for wells, ponds, springs, and to public water system hauled water storage tanks defined as exempt in section 6109.02 of the Revised Code.

(YYYY) "Water treatment" means for the purposes of this chapter continuous disinfection, continuous filtration, cartridge filtration when used in conjunction with ultraviolet light disinfection and continuous pond filtration, cyst reduction filtration, and devices designed for the removal of chemical contaminants. Unless installed prior to an ultraviolet light treatment device, water treatment does not include the installation of devices to treat aesthetic conditions such as hardness or iron.

(ZZZZ) "Weep hole" means a small diameter hole or series of holes located in the wall of the supply pipe for a frost-free yard hydrant that allow for drainage of accumulated water from the delivery piping. These holes are usually part of a plunger and valve system that seals off the holes during water usage and opens the holes during shutdown. These openings are located below ground level and below the frost line in areas where the threat of freezing exists

(AAAAA) "Well" means any excavation greater than ten feet below the ground surface regardless of design or method of construction that is done or used for any of the following purposes:

(1) Removing ground water for the provision of water for human consumption; or

(2) Determining the quality, quantity, or level of ground water in or the stratigraphy of an aquifer, excluding

borings for instrumentation in dams, dikes or levees or highway embankments.

(BBBBB) "Well cap" or "cap" means a manufactured device used to enclose the atmospheric termination of the well casing.

(CCCCC) "Well log and drilling report" has the same meaning as division (B) of section 1521.05 of the Revised Code.

(DDDDD) "Well screen" or "screen" means a manufactured intake structure with uniform openings used in unconsolidated formations designed to retain the aquifer formation, prevent collapse of the borehole adjacent to the screen, and accommodate a yield adequate for the intended use of the well.

(EEEEE) "Well sealing report" has the same meaning as division (C) of section 1521.05 of the Revised Code.

(FFFFF) "Well vent or vent" means a manufactured screened opening in a well seal or cap or located at the end of an extension above flood level to allow atmospheric pressure to be maintained in the well.

(GGGGG) "Yard hydrant" means a device that is located outside of a building, connected to a water service line, is equipped with a valve mechanism that controls the delivery of potable water, and is not designed to supply a fire department pumper.

3701-28-01

APPENDIX A
Incorporation by Reference

I. Introduction

The following is the listing of incorporated materials referenced in this chapter and stated in paragraph (HHHHH) of rule 3701-28-01 of this chapter. The text of the incorporated materials is not included in the regulations contained in this chapter. The materials are hereby made a part of the regulations in this chapter. For materials subject to change, only the specific version specified in the regulation are incorporated. Material is incorporated as it exists on the effective date of this rule. Except for subsequent annual publication of existing (unmodified) Code of Federal Regulation compilations, any amendment or revision to a referenced document is not incorporated unless and until this rule has been amended to specify the new dates.

II. Availability. The materials incorporated by reference are available as follows:

(A) American society for testing and materials. Information and copies may be obtained by writing to: "ASTM International, 100 Bar Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania 19426-2959." These documents are available for purchase at www.astm.org. ASTM documents are also generally available at local public libraries and the state library of Ohio.

(B) American society of mechanical engineers. Information and copies may be obtained by writing to: "Information Central Orders/Inquiries, P.O. Box 2300, Fairfield, New Jersey 07007-2300." These documents are available for purchase at http://catalog.asme.org/. ASME documents are also generally available at the state library of Ohio.

(C) American petroleum institute. Information and copies may be obtained by writing to: "API, 1220 L Street NW, Washington DC, 2005-4070." These documents are available for purchase at www.techstreet.com/api. API documents are also generally available at the state library of Ohio.

(D) American society of sanitary engineering. Information and copies may be obtained by writing to: "ASSE International, 18927 Hickory Creek Drive, Suite 220, Mokena, Illinois, 60448." These documents are available for purchase at http://stores.assewebstore.com. ASSE International documents are also generally available at the state library of Ohio.

(E) American national standards institute. Information and copies may be obtained by writing to: "ANSI Attn: Customer Service Department, 25 W. 43rd Street, 4th floor, New York, New York 10036." These documents are available for purchase at http://webstore.ansi.org/default.aspx. ANSI documents are also generally available at the state library of Ohio.

(F) American water works association. Information and copies may be obtained by writing to: "AWWA, 6666 W. Quincy Ave., Denver, Colorado 80235." These documents are available for purchase at www.awwa.org/store. AWWA documents are also generally available at the state library of Ohio.

(G) Canadian standards association. Information and copies may be obtained by writing to: "CSA Group, 178 Rexdale Blvd., Toronto, ON, Canada M9W 1R3." These documents are available for purchase at http://shop.csa.ca/en/canada/page/home. CSA group documents are also generally available at the state library of Ohio.

(H) National sanitation foundation. Information and copies may be obtained by writing to: "NSF International, P.O. Box 130140, Ann Arbor, Michigan 48105." These documents are available for purchase at www.techstreet.com/nsf. NSF documents are also generally available at the state library of Ohio.

III. Incorporated materials.

(A) NSF 14-2016, "Plastics Piping System Components and Related Materials." August 16, 2016

(B) NSF 51-2014, "Food Equipment Materials." October 5, 2014

(C) NSF 53-2016, "Drinking Water Treatment Units." August 14, 2016

(D) NSF 55-2017, "Ultraviolet Microbiological Water Treatment Systems." June 13, 2017

(E) NSF 60-2016, "Drinking Water Treatment Chemicals-Health Effects." March 9, 2016

(F) NSF 61-2016, "Drinking Water System Components-Health Effects." January 5, 2016

(G) API Spec 5L-2012, "Specification for Line Pipe." December 1, 2012

(H) API Spec 5C-2011, "Specification for Casing and Tubing." July 1, 2011

(I) API Spec 10A (R2015)-2010, "Specification for Cements and Materials for Well Cementing, Twenty Fourth Edition." April 1, 2015

(J) ASME B16.4-2016, "Gray Iron Threaded Fittings Classes 125 and 250." November 11, 2016

(K) ASME B16.9-2012, "Factory-Made Wrought Buttwelding Fittings." February 28, 2013

(L) ASME B16.11-2016, "Forged Fittings, Socket-Welding and Threaded." January 20, 2017

(M) ASME B16.12-2014, "Cast Iron Threaded Drainage Fittings." August 14, 2009

(N) ASME B16.28-1994, "Wrought Steel Buttwelding Short Radius Elbows and Returns." January 1,1994

(O) ASME B163-2011, "Standard Specification for Seamless Nickel and Nickel Alloy Condenser and Heat-Exchanger Tubes." October 31, 2011

(P) ASSE 1013-2011, "Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers." August 17, 2011

(Q) ASSE 1015-2011, "Performance Requirements for Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies." August 17, 2011

(R) ASSE 1024-2004, "Performance Requirements for Dual Check Backflow Preventers." May 25, 2004

(S) ASSE 1057-2012, "Performance Requirements for Freeze Resistant Sanitary Yard Hydrant with Backflow Protection." August 22, 2012

(T) ASTM A53/A53M-2012, "Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless." April 30, 2012

(U) ASTM A106/A106M-2018, "Standard Specifications for Seamless Carbon Steel Pipe for High-Temperature Service." May 1, 2018

(V) ASTM A269/A26M-2015a, "Standard Specifications for Seamless and Welded Austenitic Stainless Steel Tubing for General Service." December 1, 2015

(W) ASTM A312/A312M-2017, "Standard Specifications for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes." March 15, 2017

(X) ASTM A500/A500M-2018, "Standard Specifications for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes." January 3, 2018

(Y) ASTM A589/A589M-06-2012, "Standard Specifications for Seamless and Welded Carbon Steel Water-Well Pipe." December 1, 2012

(Z) ASTM B42-2015a, "Standard Specifications for Seamless Copper Pipe, Standard Sizes." July 1, 2015

(AA) ASTM B43-2015, "Standard Specifications for Seamless Red Brass Pipe, Standard Sizes." October 15, 2015

(BB) ASTM B75/B75M-2011, "Standard Specifications for Seamless Copper Tube." December 1, 2011

(CC) ASTM B88-2016, "Standard Specifications for Seamless Copper Water Tube." November 15, 2016

(DD) ASTM B251-2017, "General Requirements for Wrought Seamless Copper and Copper-Alloy Tube." October 1, 2017

(EE) ASTM B302-2017, "Standard Specifications for Threadless Copper Pipe, Standard Sizes." October 1, 2017

(FF) ASTM B447-2012a, "Standard Specifications for Welded Copper Tube." October 1, 2012

(GG) ASTM C150/C150M-2018 "Standard Specifications for Portland Cement." April 1, 2018

(HH) ASTM C913-2018, "Standard Specification for Precast Concrete Water and Wastewater Structures." May 1, 2018

(II) ASTM C923-08(2013)e1, "Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, Laterals." July 1, 2013 (JJ) ASTM D1785-2015e1, "Standard Specifications for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120." August 1, 2015

(KK) ASTM D2239-2012a, "Standard Specifications for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter." November 1, 2012

(LL) ASTM D2241-2015, "Standard Specifications for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)." March 1, 2015

(MM) ASTM D2464-2015, "Standard Specifications for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80." March 1, 2015

(NN) ASTM D2466-2017, "Standard Specifications for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40." August 1, 2017

(OO) ASTM D2467-2015, "Standard Specifications for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80." March 1, 2015

(PP) ASTM D2609-2015, "Standard Specifications for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe." April 1, 2015

(QQ) ASTM D2672-2014, "Standard Specifications for Joints for IPS PVC Pipe Using Solvent Cement." February 1, 2015

(RR) ASTM D2737-2012a, "Standard Specifications for Polyethylene (PE) Plastic Tubing." November 1, 2012

(SS) ASTM D2846 / D2846M-2017be1, "Standard Specifications for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems." December 1, 2017

(TT) ASTM F437-2015, "Standard Specifications for Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80." July 1, 2015

(UU) ASTM F438-2015, "Standard Specifications for Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40." July 1, 2015

(VV) ASTM F439-2013, "Standard Specifications for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80." October 1, 2013

(WW) ASTM F441/F441M-2015, "Standard Specifications for Chlorinated polyvinyl chloride (CPVC)." November 11, 2015

(XX) ASTM F442/F442M-2013e1, "Standard Specifications for Chlorinated polyvinyl chloride (CPVC)" June 1, 2013

(YY) ASTM F480-2014, "Standard Specifications for Thermoplastic Well Casing Pipe and Couplings." March 1, 2014

(ZZ) ASTM F876-2017, "Standard Specifications for Crosslinked Polyethylene (PEX) Tubing" August 1, 2017

(AAA) ASTM F877-2018, "Standard Specifications for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems." April 1, 2018

(BBB) ASTM F1807-2017, "Standard Specifications for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing." February 1, 2017

(CCC) ASTM F1960-2015, "Standard Specifications for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) Tubing" May 1, 2015

(DDD) ASTM F2080-2016, "Standard Specifications for Cold-Expansion Fittings with Metal Compression-Sleeves for Crosslinked Polyethylene (PEX) Pipe and SDR9 Polyethylene of Raised Temperature (PE-RT) Pipe." August 1, 2016

(EEE) AWWA C110-2012, "Standard Specifications for Ductile-Iron And Gray-Iron Fittings." January 1, 2012

(FFF) AWWA C115-2011, "Standard Specifications for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges" January 1, 2011

(GGG) AWWA C116-2009, "Standard Specifications for Ductile Iron Pipe, Centrifugally Cast." January 1, 2009

(HHH) AWWA C153-2011, "Standard Specifications for Ductile-Iron Compact Fittings." January 1, 2011

(III) CSA B137-2017, "Series-17 Thermoplastic pressure piping compendium." September 22, 2018

(JJJ) American Water Works Association (AWWA) (2017) Standard method for examination of water and wastewater, 23st edn. APHA, AWWA, WPCF, Washington

3701-28-02 Scope, responsibility for compliance, and applicability of rules.

(A) The definition of private water system as stated in paragraph (XXX) of rule 3701-28-01 of the Administrative Code shall apply to all systems regardless of the date of construction, development, installation, or alteration. All private water systems constructed prior to the effective date of this rule shall comply with the rules in effect at the time of construction, unless otherwise required by this chapter regardless if the water system is converted to uses other than a private water system.

(B) Chapter 3701-28 of the Administrative Code shall apply to the following:

(1) All private water systems, constructed, after the effective date of this rule; and,

(2) Except as provided in paragraphs (D), (E), (F), (G), and (I) of this rule, all private water systems constructed prior to the effective date of this rule when altered.

(C) Wells used as private water systems, constructed prior to the effective date of this rule that have deteriorated to a condition that poses a public health risk to the users or the ground water, and are in violation of any of the requirements of rule 3701-28-10 of the Administrative Code shall be improved to meet the requirements of paragraphs (N) to (R) of rule 3701-28-08 of the Administrative Code and paragraphs (P) to (R) of rule 3701-28-10 of the Administrative Code if repaired or one of the following conditions occur;

(1) If the top of the casing is buried, when excavation is done to expose the top of the casing for purposes other than the performance of an alteration;

(2) Whenever a drilling rig is placed over the well for purposes other than the performance of an alteration.;

(3) When a well is in a pit and is being altered to bring the casing above grade; or

(4) If it is determined that surface water infiltration is affecting a well in a pit while performing an inspection, repair or other work on the well.

(D) Paragraph (R) of rule 3701-28-10 of the Administrative Code and rule 3701-28-17 of the Administrative Code shall apply to all private water systems, regardless of the date of construction.

(E) Wells constructed prior to the effective date of this rule that have one or more of the following conditions shall be exempt from the construction and isolation distance requirements in paragraph (F) of this rule when altered or repaired.

(1) Wells located within a foundation of a building such as in a basement, basement offset, or in a garage;

(2) Wells that have four inch or smaller diameter casing;

(3) Wells that have casing of unknown manufacturing standard;

(4) Wells that are within ten feet of a foundation wall or a property line;

(5) Wells that have unknown annular grout placement.

(F) Wells described in paragraph (E) of this rule will not be required to meet the isolation distance from a

property line, road right-of-way, and foundation walls unless determined to be critical by the board of health in accordance with paragraph (L) of rule 3701-28-07 of the Administrative Code; meet the casing material requirements in paragraph (B) of rule 3701-28-09 of the Administrative Code; and meet the casing diameter, and grout placement requirements of rule 3701-28-10 of the Administrative Code if the property owner can demonstrate to the board of health that:

(1) The surface condition of the well casing is undamaged, not deteriorated, and in good condition,

(2) There is no direct infiltration of surface water,

(3) The well is capable of meeting the bacterial water quality standards in paragraph ~~(J)~~(K) of rule 3701-28-04 of the Administrative Code.

(G) Wells constructed prior to the effective date of this rule with casing that terminates at least eight inches above grade need not be extended to twelve inches above grade.

(H) Ponds in use as a private water system prior to 1981 shall not be required to comply with the pond volume standards and watershed area requirements of paragraph (E) of rule 3701-28-14 of the Administrative Code.

(I) Pitless adapters and pitless units installed in wells prior to the effective date of this rule need not be replaced, provided the pitless adapter remains functional and has not deteriorated.

(J) Cistern and hauled water storage tanks constructed prior to 1981 and located within the foundation of a building or sharing a wall with a building or dwelling will not be required to be relocated provided that the tank does not leak, is in good structural condition, is acceptable with the local building code or, where no building codes are applicable, as determined by the board of health or a professional engineer and is otherwise in compliance with the requirements of these rules pertaining to the operation of cisterns, reservoir tanks, and hauled water storage tanks. Manhole risers and roof washers shall be added when feasible as determined by the board of health.

(K) When the average number of individuals regularly served by a private water system cannot be readily determined, a determination for the purpose of applying these rules shall be made as follows:

(1) 2.44 individuals per dwelling unit served by the water system. For purposes of this rule dwelling unit includes a lot in a manufactured home park, as defined in rule 4781-12-01 of the Administrative Code, and a campsite in a campground as defined in paragraph (C) of rule 3701-26-01 of the Administrative Code.

(2) In the case of a building as defined by section 3781.06 of the Revised Code, the number of individuals is determined by the certificate of occupancy.

(L) Unless otherwise specified in a rule, the responsibility for compliance with these rules shall be as follows:

(1) In the design, construction, installation, or in allowing access for inspection for final approval of a new private water system or the alteration of an existing system, the property owner and any contractor performing the services will be responsible for compliance with the applicable rules and the terms of the permit, jointly and individually, and compliance shall be by either party or both. The board of health

shall enforce the applicable rules against the property owner or any contractor who performed the services or both.

(2) In the repair of an existing system, or the sealing of a test hole or private water system, the property owner and any contractor performing the services will be responsible for the compliance with the applicable rules, jointly and individually, and compliance may be by either party or both. The board of health shall enforce the applicable rules against either the property owner or any contractor who performed the services or both.

(3) In the operation and maintenance of a private water system, the property owner, any person in control of the property, and the contractor performing the required operational maintenance of a private water system will be responsible for the compliance with the applicable rules, jointly and individually, and compliance may be by any party or all parties. The board of health may enforce the applicable rules against either the property owner, any person in control of the property, the contractor performing the required operational maintenance, or all parties.

(4) Where any requirement in these rules is not within paragraph (L)(1), (L)(2), or (L)(3) of this rule, the property owner and any person in control of the property shall be responsible for compliance jointly or individually.

3701-28-03 Permits, system approval and sampling requirements.

(A) No person shall construct, alter or seal a private water system, test well or part thereof, unless a valid permit for the system has been issued by the board of health pursuant to this rule.

(1) Any person intending to construct a private water system, convert a well to a private water system, alter a private water system or install a test well or component thereof, shall, either in person or through a designated agent, make application to the board of health for a permit. Permits may be completed in person, sent by mail, or submitted by fax or electronically where the board of health accepts electronic payment. Except as provided in paragraphs (A)(2) and (J) of this rule, no work shall commence until a valid permit has been issued and approved. Each application shall be accompanied by the appropriate permit fee established under this chapter, all information required under this rule, and the fee for at least one water sample for any private water system alteration, conversion, or new construction permit. The applicant shall sign the application form, and shall indicate the name of any registered contractor intending to do the work, if known. An application becomes a permit upon validation by the local health district.

(2) Any person intending to seal a well, or decommission any other type of private water system that is not being sealed or decommissioned due to the replacement of an existing well or other private water system, shall apply for a permit not later than five business days after the well or other private water system has been sealed or decommissioned.

~~(2)~~ (3) If a plan is not required to be submitted under paragraph (F) of this rule the board of health shall determine whether the proposed construction, alteration, sealing, or decommissioning is in compliance with the provisions of this chapter within ten business days of receipt of a complete application and the appropriate fee. If a plan is required to be submitted under paragraph (F) of this rule the board of health shall determine whether the proposed work is in compliance with the provisions of this chapter within fifteen business days of receipt of a complete application and the appropriate fee.

(a) Except for emergency work conducted under paragraph (J) of this rule, the board of health shall work with the applicant and the private water systems contractor to review the site conditions to ensure that all isolation distances are met in accordance with rule 3701-28-07 of the Administrative Code prior to the construction or alteration of the private water system.

(b) If the board of health determines that the proposed construction, alteration, decommissioning, or sealing of a private water system or test hole is in compliance with this chapter, the board of health shall issue a permit to the applicant. If a registered contractor was not indicated at the time of application, the applicant shall notify the board of health prior to the commencement of work on the private water system of the name of any registered contractor who intends to do the work.

(c) If the board of health determines that the proposed construction, alteration, decommissioning, or sealing does not comply with this chapter, the board of health shall deny the application. The applicant and the registered contractor, if known, shall be notified of the denial in writing by the board of health.

(d) Within thirty days after the denial of an application to construct, alter, decommission, or seal a private water system, the property owner or his designated agent shall be provided with an opportunity to appeal the decision and a hearing shall be provided if requested.

(B) Each application to construct a private water system shall contain information about the location, design,

construction, installation and development of the private water system or installation of test holes. The application shall include a site plan designating the location or area of the proposed or existing private water system or test hole, and distances from roadways, road rights-of-way, buildings, driveways, sewage treatment systems, sewers, existing or properly sealed water supply wells, oil and gas wells, above ground or underground fuel oil, liquid petroleum, chemical or gasoline storage tanks, streams, lakes, ponds, ditches, leaching pits, privies, manure ponds, manure lagoons, manure piles, lot lines, easements and any other information required by the department or board of health.

(C) Each application for the alteration of a private water system shall contain all pertinent information required by the department or board of health about the alteration of the private water system.

(D) Each application for a permit to seal or decommission a private water system shall contain all information required by the department or board of health about the sealing or decommissioning of the private water system.

(1) A person intending to seal or decommission a private water system and construct a new private water system on the same premises to replace the sealed or decommissioned private water system shall only be required to obtain a construction permit.

(2) Only one sealing permit is required per property for sealing or decommissioning multiple private water systems.

(E) An alteration permit can be converted into a new construction permit, if during the commencement of an alteration it is determined by a registered contractor or the board of health that the construction of a new water source will be required.

(1) A contractor shall immediately notify the board of health of a request to change the alteration permit into a new replacement private water system construction permit and submit all necessary site plans and detailed plans, as required, for new construction;

(2) A contractor shall immediately cease work on the private water system until the board of health has performed a site review and approved the request to modify the permit; and

(3) The board of health shall collect the additional state portion of the fee and may collect any difference in the amount between an alteration permit fee and a new construction permit fee.

(F) In addition to the requirements of this rule,

(1) An owner or their designated agent proposing to construct, or alter a private water system that meets one of the following criteria shall submit plans relating to the construction, work and equipment of the water system to the board of health:

~~(1)~~ (a) A private water system servicing a building as defined in section 3781.06 of the Revised Code;

~~(2)~~ (b) A private water system servicing other than one- two-, or three- family dwelling;

~~(3)~~ (c) A private water system that uses a cistern, spring or pond as a source of water;

~~(4)~~ (d) A well drilled in an area of known flowing well conditions as designated by the department or by the board of health at the time the initial permit application is reviewed;

~~(5)~~ (e) A private water system source that will be located within three hundred feet of a land application

area as defined in paragraph (EEE) of rule 3701-28-01 of the Administrative Code;

~~(6)~~ (f) The installation of a drive point well;

~~(7)~~ (g) The installation of a buried pressure tank;

~~(8)~~ (h) The installation of a gasoline powered pump and pressurization system;

~~(9)~~ (i) The installation of a continuous disinfection and/or filtration system;

~~(10)~~ (j) The installation of a point of entry water treatment system intended to remove or reduce a contaminant to below a health based standard; or

(2) When plans are not submitted electronically the board of health may require the plans be submitted in duplicate.

(G) Plans required under paragraph (F) of this rule shall:

(1) For a multi-family dwelling or building, include relevant information as to the number of individuals to be served;

(2) Be legible and accurately drawn with a north directional arrow;

(3) Include relevant elevations for ponds and springs;

(4) Show the locations, layout, and type of all water system equipment, including but not limited to any disinfection and filtration equipment and components required for compliance with this chapter. Plans shall include the make and model of devices, storage tank capacities, and any operation and maintenance requirements;

(5) Include a listing of all materials to be used in construction, installation, or alteration of the water system;

(6) For a drive point well, include relevant information to document to the board of health what geologic or site conditions exist at the property to preclude the use of or access to the property by conventional drilling equipment and methods;

(7) Show the layout of the water distribution piping from the source to the service connections; and

(8) Include any other information required by the department or board of health.

(H) Any modification or deviation from the approved permit site plan or additional detailed plans including, but not limited to, a change in the type of system, locations shown on the site plan, or changes in the location or the treatment equipment shown on the detailed plans must be reported to the board of health within three business days. The private water system's owner and contractor are not guaranteed approval of the system by the local board of health when changes are made to the approved permit site plan or additional detailed plans prior to board of health review and approval of the changes.

(I) The board of health shall not approve any plan that does not conform to the requirements of this chapter. No permit shall be issued until the plans have been approved by the board of health.

(J) When an emergency exists, work may be commenced on the construction or alteration of a private water system prior to obtaining a permit, provided the private water systems contractor notifies the board of health

the next business day by phone or e-mail, and a permit is applied for within three business days after commencement of the construction or alteration. The private water system's owner and contractor are not guaranteed approval of the system by the board of health under emergency construction.

(1) For purposes of this rule "emergency" means that the existing private water system fails to produce an adequate amount of potable water which poses an immediate threat to health and safety and no alternative potable water source exists, and the work will commence during non-business hours of operation of the board of health, or prior to the end of the board of health's ten business days to review the application.

(2) Emergency alteration or construction work shall not commence prior to application being made during open business hours of the board of health.

(3) Emergency alteration or construction shall not occur at locations where there are currently no existing or partially constructed structures, homes, or buildings.

(4) Except for a private water system servicing a multi-family dwelling or building, emergency alteration or construction shall not occur at locations which require additional plans in accordance with paragraph (F) of this rule.

(K) If a private water system is constructed or altered as an emergency under this rule and it is later determined by the board of health that no emergency existed as defined in paragraph (J)(1) of this rule, the private water system contractor shall be assessed the additional fee amount established in accordance with paragraph (E)(17) of rule 3701-28-06 of the Administrative Code.

(L) A temporary hauled water storage tank may be installed to address extreme situations such as construction dewatering, drought, or flood conditions under a temporary hauled water storage tank permit issued from the board of health and shall include the specified time restrictions for the operation and dismantling of the temporary hauled water storage tank. If a temporary hauled water storage tank is part of a permitted emergency construction, replacement construction or alteration of a private water system, a separate permit for the temporary hauled water storage tank shall not be required. The application for the construction or alteration permit shall contain the required information related to the temporary hauled water storage tank.

(1) Temporary plastic or fiberglass water storage tanks constructed of approved materials that meets NSF 61-2016 and the specifications of paragraph (A) of rule 3701-28-12 of the Administrative Code may be installed above grade.

(2) Temporary plastic or fiberglass water storage tanks may be set at locations on a property that may not meet all of the distance requirements specified in rule 3701-28-07 of the Administrative Code, as allowed by the board of health.

(3) Temporary hauled water storage tanks that do not meet the minimum capacity specified in paragraph (C) of rule 3701-28-12 of the Administrative Code may be permitted.

(4) A temporary hauled water tank shall not become a permanent private water system and shall be removed at the time specified on the installation permit. An additional alteration permit may be applied for to retain the existing temporary hauled water storage tank for an additional specified time period if the emergency conditions continue.

(M) If a permit has been issued for the construction of a well to be used for a new private water system, and the first attempt to drill the well is unsuccessful, then additional wells may be drilled within the area designated

on the permit or the drilling site without obtaining additional permits, provided the original permit has not expired. The well sealing report or well log required by section 1521.05 of the Revised Code for each dry hole shall be filed with the Ohio department of natural resources, division of geological survey and the board of health. A copy of the report or log shall be provided to the private water system owner, and the registered contractor who performed the sealing shall retain a copy.

(1) All boreholes left without casing, a properly grouted annular space and a vermin proof well cap, all dry holes, and all test wells and test holes which are not to be converted to private water systems or geothermal wells within ten days of completion, shall be sealed in accordance with rule 3701-28-17 of the Administrative Code.

(2) If a dry hole, test well or test hole is going to be converted into a geothermal well, it shall be done in accordance with the requirements of paragraph (C) of rule 3701-28-17 of the Administrative Code.

~~(4)~~ (3) A completion form shall be submitted to the board of health for any dry hole, test well or test hole indicating that it is to be converted to a geothermal well instead of being sealed.

~~(5)~~ (4) An alteration permit shall be obtained for any approved test well or test hole that is to be converted into a private water system.

(N) An additional new construction permit is not required to be issued when there is a change in the type of private water system source.

(1) If the private water system type is changed, the application permit information which needs to be modified shall be submitted by the applicant to the board of health which shall record the changes to the permit. When required, additional plans must be submitted in accordance with paragraph (F) of this rule. Plans must be approved prior to any work being performed.

(2) If the permit category for the other private water system has a higher fee than the original permit fee, then the board of health may charge the difference between the fees for the same permit.

(O) Permit applications, permits and completion forms shall be on forms prescribed or approved by the department. The board of health shall specify within such permits the date upon which the permit expires and that the issuance of the permit is conditioned upon the right of the board of health or the department to enter upon the premises of the private water system identified in the permit at any reasonable time prior to, during, or after completion of the work specified in the permit for the purpose of determining compliance with this chapter.

(P) A permit shall be obtained for any non-potable well, agricultural well, public water system or geothermal system that is to be converted into a private water system and shall be regarded as a new construction. A non-potable well is a well where the water is not used for human consumption, or other potable uses. The converted system shall be reviewed by the board of health prior to issuance of the permit to ensure the well meets all requirements of this chapter. The board of health shall review a well log or downhole camera survey to ensure compliance, and may also review dye test, water sample data, or other information presented by the well owner or a private water systems contractor.

(Q) If the private water system has not been constructed, sealed or altered within one year from the date of permit issuance, the permit shall automatically expire. The board of health may extend the permit period for an additional six months. If a private water system is under orders by the board of health for correction of a construction violation, the permit may be reopened or extended beyond the six month extension for an

additional period of time at the discretion of the board of health so that the required work can be performed.

(R) For purposes of this rule, "date of completion" means:

(1) The date on which the well, spring, pond, hauled water storage tank, or cistern is installed;

(2) The date on which the installation of the pump, pumping equipment, or other component of the private water system is completed;

(3) The date on which the other components of the private water system are completed if a pump or pumping equipment will be installed by a person other than the contractor identified on the permit;

(4) If no completion form is filed with the local health district, the date the well log is filed with the department of natural resources by the private water systems contractor;

(5) The date the disinfection, filtration or other treatment equipment to remove contaminants is installed;

(6) When more than one private water systems contractor performs work on a private water system, the date of completion for each private water systems contractor is the date that person completes their portion of the work on the private water system; or

(7) The date that a private water system is sealed or decommissioned.

~~(T)~~ (S) Within thirty days of the date of completing any portion of the work on a private water system as described in paragraph (R) of this rule, a complete and accurate completion form shall be submitted to the board of health by the person completing the work. Submission of the form may be done by walk-in, fax, electronically, or mail.

~~(U)~~ (T) Within thirty days of the drilling, alteration or sealing of a well, dry hole, or test hole, or the date of completion of a well, a copy of the well log or sealing report required to be filed with the Ohio department of natural resources, division of geological survey, as required under section 1521.05 of the Revised Code, shall also be submitted to the board of health, to the private water system owner, and the registered contractor shall retain a copy. Submission of the form may be done by walk-in, fax, electronically, or mail.

~~(V)~~ (U) Within thirty days of the date of completion of an alteration that does not require a well log to be filed under section 1521.05 of the Revised Code, the person who performs the alteration shall file a complete and accurate completion form with the board of health. Submission of the form may be done by walk-in, fax, electronically, or mail.

~~(W)~~ (V) Upon receipt of all required forms, the board of health shall contact the applicant and/or owner to conduct an inspection and collect a water sample(s) in accordance with rule 3701-28-04 of the Administrative Code and the following requirements:

(1) The initial water sample shall be tested for nitrates, escherichia coli and a coliform CFU or MPN count. Repeat water samples collected for a system after the first sample shall be tested for escherichia coli and a coliform CFU or MPN count, or pathogenic microorganisms as applicable. Repeat sampling may include additional parameters, as required for an investigation.

(2) The board of health may prescreen the water sample for nitrates using test kits or strips capable of reading nitrate concentrations in water down to 1 milligram per liter.

(3) The board of health shall provide the water sample results, in writing, to the private water system owner,

agent, applicant, and each private water systems contractor who has performed work on the private water system.

(4) The board of health shall report the findings of water tests which indicate a presence of escherichia coli, pathogenic microorganisms or nitrates in excess of maximum contaminant levels, as set forth in rule 3701-28-04 of the Administrative Code, to the department.

~~(X)~~ (W) If the sample obtained from the private water system exceeds the maximum contaminant levels for microbiological contaminants specified in paragraph (K) of rule 3701-28-04 of the Administrative Code, the private water system shall not be approved, unless effective remediation measures to reduce the total coliform, and eliminate any escherichia coli, or any primary pathogenic organism are implemented for the private water system. For a private water system well with casing that extends twenty-five feet or more below the ground surface which is exceeding maximum contaminant levels for microbiological contaminants, continuous disinfection of the system may be installed in accordance with rule 3701-28-15 of the Administrative Code only after:

(1) Enhanced disinfection of the entire private water system is performed by a registered private water systems contractor as specified in paragraph (H) of rule 3701-28-11 of the Administrative Code; and

(2) An investigation has been performed by the board of health as specified in paragraph (AA)(1) of this rule and upon determination by the board of health that the private water system well is constructed in compliance with this chapter.

~~(Y)~~ (X) If the sample obtained from the private water system indicates that the maximum contaminant level for nitrates has been exceeded the board of health shall provide information to the private water system owner on the health risks of nitrates, and options for the treatment of the private water system to reduce the nitrates to acceptable levels. If additional sampling is performed on the private water systems for any of the contaminants referenced in paragraph (K) of rule 3701-28-04 of the Administrative Code and listed in Chapter 3745-81 of the Administrative Code, and levels exceeding the maximum contaminant level are identified in the water sample from the private water system, the board of health shall provide information to the private water systems owner on the health risks of that contaminant, and options for treatment of the private water system. The department shall also post health risk information and options for treatment on the department’s website.

~~(Z)~~ (Y) After the receipt of the results of the water samples, and upon the basis of the board of health's inspection(s) and review of all completion, job status, alteration or well log forms as applicable, the water sample results, and all other pertinent data relative to the private water system, the board of health shall approve the private water system if the system is in compliance with the provisions of this chapter.

(1) A private water system shall not be approved that is not in compliance with this chapter and the board of health shall order the private water system into compliance for any construction and administrative violation of this chapter in accordance with paragraph (L) of rule 3701-28-02 and paragraph (F) of rule 3701-28-04 of the Administrative Code.

(2) The private water system shall not be used for human consumption until it has been approved by the board of health.

~~(AA)~~ (Z) If repeated total coliform, escherichia coli or other primary pathogenic organisms are found in samples from the well that exceeds the maximum contaminant levels specified in paragraph (K) of rule 3701-28-04 after using the disinfection procedure in paragraph (H) of rule 3701-28-11 of the Administrative Code, the

board of health shall notify the department and shall undertake a joint investigation with the private water systems contractor of the private water system to determine the source of contamination and approve possible remediation measures, including continuous disinfection as described in rule 3701-28-15 of the Administrative Code.

(1) The investigation may include, but not be limited to:

(a) A dye test;

(b) A down-hole camera recording of the constructed well;

(c) Tests appropriate for the site and system conditions.

~~(BB)~~ (AA) A private water system shall not be approved unless a water sample from the private water system meets the standards specified in paragraph (K) of rule 3701-28-04 of the Administrative Code.

~~(CC)~~ (BB) Once the board of health approves the private water system the permit is invalid unless the permit is reopened for corrections of construction violations due to a bond claim investigation or board of health orders in accordance with paragraph (Q) of this rule.

~~(DD)~~ (CC) Except for one-, two-, and three-family dwellings, all new and existing private water systems providing water for human consumption or potable uses shall have a water sample collected annually from the private water system by either the board of health, a person holding a current Class A, I, II, III, or IV public water systems operator certification from the Ohio environmental protection agency as authorized under Chapter 3745-7 of the Administrative Code, a person employed by a laboratory holding a current drinking water laboratory certification from the Ohio environmental protection agency as authorized under Chapter 3745-89 of the Administrative Code or equivalent national certification for the analysis of drinking water, or other certification programs developed or authorized by the director. Private water systems covered by this paragraph include, but are not limited to, those serving:

(1) Foster homes as required under rule 5101:2-7-12 of the Administrative Code;

(2) An residential facility as required by rule 5122-30-11 of the Administrative Code;

(3) A licensed child care center as required by rule 5101:2-12-13 of the Administrative Code;

(4) Residential facilities as required under rule 5101:2-9-04 of the Administrative Code;

(5) A resident day camp as required by rule 3701-25-05 of the Administrative Code;

(6) Children's residential centers, group homes, and residential parenting facilities as required under rule 5101:2-9-04 of the Administrative Code;

(7) Licensed type A homes as required under rule 5101:2-13-12 of the Administrative Code;

(8) A campground as defined in paragraph (C) of rule 3701-26-01 of the Administrative Code;

(9) A manufactured home park as defined by division (D) of section 4781.01 of the Revised Code;

(10) A food service operation or retail food establishment as required by rule 3717-1-05 of the Administrative Code;

(11) Private water systems used by registered private water systems contractors to provide water for drilling purposes;

(12) Private homes operated as a bed-and-breakfast that prepares and offers food and water to guests; and,

(13) A hotel, transient hotel, extended stay hotel or residential hotel as defined by section 3731.01 of the Revised Code.

~~(EE)~~ (DD) The sample collected under paragraph (CC) of this rule shall be analyzed for the presence of total coliform, escherichia coli or other primary pathogenic organisms as specified in paragraph (K) of rule 3701-28-04 of the Administrative Code;

(1) The sample results shall be reported to the board of health, along with information about the number of individuals served by the private water system within one business day of the result being returned from the lab; and

(2) The board of health shall maintain these records.

~~(FF)~~ (EE) If the water sample collected under paragraph (CC) of this rule exceeds the maximum contaminant level for bacterial or primary pathogenic organisms under paragraph (K) of rule 3701-28-04 of the Administrative Code, the private water system owner shall:

(1) Have a registered private water system contractor disinfect the private water system in accordance with rule 3701-28-11 of the Administrative Code.

(a) The private water system shall be re sampled after disinfection; and,

(b) The results shall be reported by the system owner or their agent to the board of health within one business day of the result being returned from the lab.

(2) If the water sample collected after disinfection exceeds the bacterial standard under paragraph (K) of rule 3701-28-04 of the Administrative Code, the owner of the private water system shall:

(a) Notify all end users, in writing, of any restrictions of water usage as determined by the department and provided to the private water system owner by the board of health. A copy of this notice and the method of end user notification shall be provided to the board of health the same day of issuance to the end users; and

(b) Implement corrective actions, as needed, to obtain a bacteriologically safe water supply.

(3) If the corrective action implemented under this paragraph is the installation of a continuous disinfection water treatment system as required under rule 3701-28-15 of the Administrative Code, then in addition to the annual sampling, an annual operation and maintenance inspection shall be performed by a registered private water systems contractor and the results reported to the board of health to ensure the continued performance of the disinfection system.

~~(GG)~~ (FF) Any private water system constructed, altered or sealed by a person who has not obtained a registration, as required under rule 3701-28-18 of the Administrative Code, or is not exempt from registration pursuant to paragraph (A)(2) of rule 3701-28-18 of the Administrative Code shall not be approved.

(1) If the entire portion of the system constructed by an unregistered contractor is reconstructed by a

registered private water systems contractor, the board of health shall not require a variance to this rule, but shall evaluate the new construction for compliance with this chapter.

(2) The board of health shall not grant a variance to this rule unless the portion of the private water system constructed is assessed and deemed acceptable by a registered private water systems contractor.

~~(2)~~ (3) The unregistered contractor who performed work on the private water system may complete the work on the private water system provided that the following have occured prior to additional work occuring:

(a) The property owner has obtained a variance from the board of health to paragraph (FF)(1) of this rule and to rule 3701-28-18 of the Administrative Code for the work performed on the private water system by an unregistered contractor. If the surety bond does not cover the work performed, the variance shall require a notarized statement from the unregistered private water systems contractor that they assume financial liability for costs associated with corrective actions which may be required to bring portion(s) of the system constructed without surety bond coverage into compliance with this chapter; and

(b) The contractor makes application to the department for registration as a private water systems contractor in accordance with paragraph (B) of rule 3701-28-18 of the Administrative Code. This application shall include the five hundred dollar registration fee for registrations submitted after work which requires registration has been performed on a private water system; and

(c) The department places the contractor on the list of registered private water systems contractors.

3701-28-04 Inspection; water sample collection and analysis and water quality standards.

(A) The board of health or the department of health may perform inspections as often as necessary to determine satisfactory compliance with this chapter. For purposes of this rule, "inspection" means the observation and documentation of the location, construction, or physical condition of a private water system or any component of such a system and includes, without limitation, water sampling for the detection of any contaminants, the documentation of a violation of construction standards, technical procedures, or any other requirement established under this chapter.

(B) The owner or the designated agent of a new or altered private water system is responsible to contact the board of health for an inspection and the collection of water samples when work on the private water system has been completed. The property owner shall provide reasonable access to the board of health for pre-construction site evaluations and for conducting final inspection of the outside and inside components of the private water system and for collection of required water sample(s) while the permit remains valid.

(C) The board of health shall inspect each private water system constructed, altered, or sealed after the effective date of this rule to determine compliance with this chapter. When a property owner has not contacted the board of health within thirty working days after the board of health has received documentation indicating that the private water system construction, alteration, or sealing has been completed, such as a well log, completion form, or other notification, the board of health shall contact the property owner in order to determine the completion status of the private water system and to schedule an inspection and water sample (when applicable).

(D) The inspection by the board of health shall include an examination of at least the following, as applicable:

(1) A review of all required forms for compliance within thirty days of receipt by the board of health and prior to collecting a water sample and conducting a site inspection.

(2) The well casing for proper ASTM, API, ANSI or NSF designations, casing type, wall thickness, and height above final grade.

(3) The surface condition of the annular space around the casing to determine the presence of grout, and the absence or presence of subsidence, using a probe or other visual indication of the surface condition of the annular space.

(4) All isolation distance requirements as provided in rule 3701-28-07 of the Administrative Code and any other potential sources of contamination.

(5) The pitless adapter, when necessary.

(6) Removal of the well cap for determination of proper well cap type, proper installation and venting and observation of the inside of the casing, when necessary.

(7) The dedicated water sample faucet(s) and pressure relief valve.

(8) Required backflow devices.

(9) The complete disinfection and filtration system, including all required signage and labeling.

(10) For cisterns, springs, reservoir tanks, and hauled water storage tanks~~;~~, tank size, tank standards and specifications, manhole covers for safety, and intakes.

(11) Pond intakes, pond and spring watershed control area, wet side slope, and pond size.

(E) Where board of health or the department determines that any of the following conditions exist at a well, the registered contractor performing the work or the well owner may be required to excavate around the well head for verification of proper grouting.

(1) A visible open annular space surrounding the well casing.

(2) Grout is not detected at or below the water service line connection to the casing.

(3) The detection of dye in the well water after placement of tracer dye around the casing at or near the ground surface.

(4) A well log or sealing report which indicates that the well has not been grouted or which lacks information or contains incomplete or erroneous information pertaining to the grouting of a well.

(5) Or any other condition as determined by the department or the board of health to verify compliance with this chapter.

(F) Where the board of health determines, based on the inspection and review of the required forms, that a private water system has not been constructed, altered, or sealed in accordance of this chapter, the board of health shall either:

(1) Notify the contractor of the violation in writing and offer the opportunity to correct in a timely manner; this contact and any related correspondence shall be recorded in the permit file. If the violation is not corrected within the time frame established by the initial notification, the board of health shall issue a written notice of violation to the responsible persons as specified in paragraph (L) of rule 3701-28-02 of the Administrative Code and orders to comply with this chapter. Orders shall be copied to the department as well as the owner, applicant and all contractors identified on the permit; or,

(2) Issue a written notice of violation to the responsible persons as specified in paragraph (L) of rule 3701-28-02 of the Administrative Code and orders to comply with this chapter. Orders shall be copied to the department as well as the owner, applicant and all contractors identified on the permit.

(G) New registrant private water systems contractors who construct private water systems wells shall obtain a minimum of one construction and knowledge assessment inspection within the first twelve months of registration. The inspection shall be performed by the department or a person designated by the department, and shall take place during the construction process to determine that the private water system is being constructed in compliance with this chapter.

(H) New registrant private water systems contractors who perform work on private water systems other than construction of a private water system well shall obtain a minimum of one construction and knowledge assessment inspection from a board of health within the first twelve months of registration. The inspection shall take place during key stages of the construction process to determine that the private water system is

being constructed in compliance with this chapter.

(I) Private water systems contractor inspections shall be recorded on inspection report forms prescribed or approved by the department, and shall provide for a comprehensive review of compliance with this chapter. A copy shall be provided to the department, the board of health, and the registered contractor within thirty days of the inspection.

(J) The department may elect to conduct construction and knowledge assessment inspections for any registered contractor, as needed, to determine if work on a private water system is being completed in compliance with this chapter.

(K) The board of health shall collect and process water samples as required in paragraph (W) of rule 3701-28-03 of the Administrative Code after completion of the private water system and receipt of well logs and/or completion forms and when the private water system is determined to be in compliance with this chapter. Water samples shall be collected and processed according to the following procedures:

(1) Information regarding the private water systems owner, address of the property, and date of sampling shall be recorded.

(2) A sanitary survey shall be performed of the site for a pre-existing private water system that is being sampled for purposes of an inspection or bond claim.

(3) Water to be tested shall be checked at the time of collection by the person collecting the sample for the presence of chlorine or any other disinfectant used prior to disinfection of the sample faucet prior to submission for analysis.

(a) Water samples from private water systems wells and systems utilizing ultraviolet light for continuous disinfection shall be collected a minimum of forty-eight hours after the private water system has been chlorinated or disinfected with a material other than chlorine and completely flushed to remove all residual chlorine or other disinfectant from the system.

(b) Water collected from hauled water storage tanks shall have at least two tenths of a milligram per liter residual of chlorine present at the time a water sample is collected.

(c) Water collected from private water systems utilizing continuous disinfection with a chemical disinfectant shall have a chemical disinfectant residual detected at the level required in paragraphs (M) and (O) of rule 3701-28-15 of the Administrative Code for the specific disinfection device at the time the water sample is collected.

(4) All water samples collected as part of the permit requirements of this chapter shall be collected at the point of discharge of the system, and shall not be collected from hoses, outside spigots, or yard hydrants. In circumstances where the sample faucet cannot be relocated to an accessible location, such as when the pressure tank is located in an inaccessible crawl space, in an underground vault or buried below the ground surface, and when no other sample faucets are accessible, a water sample may be collected from the closest faucet to the pressure tank. The need to collect the sample at this location shall be clearly denoted on the forms submitted by the private water systems contractor.

(5) If the water system is a well, it shall be purged a minimum of ten minutes. If there is no drain near the pressure tank several ~~–~~faucets throughout the building shall be turned on to assist in purging the system. Where the yield cannot be sustained for at least ten minutes the system shall be purged to insure flushing of the distribution system to get a representative sample from the well. A cistern, pond, hauled water storage tank, or spring, shall be purged long enough to remove all water standing in the distribution system prior to collecting the sample. Discharge of water to the sewage treatment system should be minimized when possible. If the water sample is collected from the well head out of the pitless adapter, it shall be run for a minimum of three minutes.

(6) The person collecting the water sample shall sanitize their hands just prior to collection.

(7) The sampling faucet, shall be sanitized with either a chlorine solution containing a minimum of four hundred milligrams per liter chlorine, or an isopropyl alcohol solution of not less than seventy per cent, or a solution of two hundred milligrams per liter quaternary ammonia, by spraying or flushing the faucet, by flaming a metal sample faucet, or by using other methods approved by the department.

(8) Water samples shall be collected in a sterile sample container provided by the laboratory that will perform the analysis. The sample bottle shall not be rinsed prior to the collection of the sample. The lip or inside of the sample bottle or inside of the lid shall not come into contact with any sources of contamination.

(9) Water samples to be tested for nitrates, shall be stabilized at the site or delivered to the laboratory within the time frame required by the laboratory in accordance with the standard method. The private water system may be pre-screened on site with nitrate test strips or kit as authorized under paragraph (V) of rule 3701-28-03 of the Administrative Code and used in accordance with the manufacturer's directions. If the sample is prescreened and the presence of nitrates is detected at five milligrams per liter or greater, a sample shall be submitted to an approved lab for nitrate analysis.

(10) All water samples to be tested for bacteria, shall be transported in ~~a~~an insulated closed container containing ice or other equivalent cooling media and transported to the laboratory the time frame required by the laboratory in accordance with the standard method.

(11) All water samples, shall be tested at a laboratory approved for the testing of microbiological contaminants, and primary drinking water standards under Chapter 3745-89 of the Administrative Code or a laboratory approved by the department. Testing for total coliform or coliform CFU or MPN counts shall use approved methods that are appropriate to the source of the water being tested and the observed or known water quality.

(12) When a coliform CFU or MPN count is required, the number of coliform bacteria CFU or MPN can be determined by using methods for bacterial enumeration described in the twenty-second edition of "Standard Methods for the Examination of Water and Wastewater," which is published jointly by the American public health association, the American water works association, and the water pollution control federation, or through other methods approved by the department.

(13) For private water systems required to utilize continuous disinfection or maintain a chemical disinfectant

residual, the indicator bacteria shall be determined using approved methods that determine a CFU or MPN count or indicate the presence or absence of the indicator bacteria.

(L) The board of health may charge the private water system owner a fee for each water sample collected by the board of health for the purpose of determining the presence of any contaminants.

(M) The department shall provide for making the bacteriological examinations and the determination of the presence of nitrates in its laboratories of water samples required by these rules at the cost set forth in the fee schedule established in Chapter 3701-49 of the Administrative Code for each bacteriological examination and nitrate analysis performed, and shall establish a system to receive such water samples at its laboratories, and to make such charges therefore; provided, however, these rules do not prohibit such examination from being made by other laboratories approved by the Ohio department of health.

(N) The following microbiological standards and maximum contaminant levels (MCL) apply to all private water systems unless otherwise specified:

(1) For water wells not using continuous disinfection, or not required to have a disinfectant residual the acceptable level for bacteria indicators in the water sample shall be:

(a) Four or less total coliform CFU or 4.2 or less total coliform MPN per one hundred milliliters of water for the purposes of acceptable well construction and development and as an indication of the presence of opportunistic bacteria;

(b) No detection of Escherichia coli CFU or MPN per one hundred milliliters of water; and~~;~~

(c) If additional microbiological speciation analysis or coliphage testing is done, there shall be no detection of any primary pathogenic microorganism, other fecal indicator microorganisms, or coliphages as determined by the department.

(2) For any private water system required to have a disinfectant residual or to have continuous disinfection and/or filtration in accordance with rule 3701-28-15 of the Administrative Code, there shall be no detection of total coliform CFU or MPN, or escherichia coli CFU or MPN per one hundred milliliters of water, or if additional microbiological testing or speciation analysis or coliphage testing is done, any primary pathogenic microorganism as determined by the director.

(3) Water sample results determined using membrane filter that indicate a high background count or confluent growth are considered invalid and may not be used to determine compliance with the water sample requirement of this rule.

(4) For the purposes of making recommendations for the consumption and treatment of water from private water systems, the maximum contaminant levels, health advisory levels, or action levels and standards of chemical constituents for private water systems shall be the same as the primary maximum contaminant levels health advisory levels, or action levels and standards established by the United States environmental protection agency for public water supplies in accordance with 40 CFR 141 (2018), or the agency for toxic substance and disease registry, or the centers for disease control and prevention.

3701-28-05 Approval to enforce.

(A) The director of health shall survey each private water systems program of the city and general health districts, or the authorities having the same duties as a board under section 3709.05 of the Revised Code, at least once every three years to determine their adequacies for carrying out the provisions of this chapter. The health district or authority shall provide the director with all requested information to complete the survey.

(B) A survey methodology shall be developed by the director and provided to each health district or authority and shall include:

(1) A review of any regulations for consistency with this chapter, the administrative aspects of the private water systems program including application and permitting, staff resources and knowledge of the technical aspects of the program, cost analysis and fee adoption, plan review, inspections and reports, sampling, investigations, and enforcement; and

(2) A field review of the inspection of private water systems during construction and after completion to evaluate overall compliance with the private water systems construction, sampling, alteration and sealing requirements set forth under this chapter.

(C) The director shall survey the private water systems program in accordance with the survey methodology and shall determine whether the health district or authority is qualified to administer and enforce this chapter. After the survey is complete, the director shall classify the health district or authority as either approved, provisional or disapproved, and shall provide a survey report to the health district or board. If the health district or authority is classified as provisional, the director shall provide:

(1) A set time frame for correcting the deficiencies;

(2) Procedures for program disapproval that the department will pursue if the health district or authority fails to correct the major deficiencies revealed by the survey; and

(3) An opportunity to request a meeting with a representative of the director to discuss the deficiencies.

(D) The health district or authority may request an informal hearing on the director's proposed determination if a written request is received by the director no later than fifteen days after the date of mailing the proposed determination. The informal hearing shall be conducted before the director or the director's authorized representative no later than thirty days after the director of health received the request for hearing. At the hearing, a representative of the health district or authority may present information orally and in writing. The director shall issue a written decision no later than thirty days after the conclusion of the informal hearing.

(E) The department shall reevaluate a health district or authority's provisional private water systems program in the established time frame to determine if the program is in compliance. If in compliance, the director shall classify the health district or authority as approved. If the deficiencies have not been corrected, the director shall propose to disapprove the health district or authority, or shall propose to revoke the approval, whichever is appropriate.

(F) The director may reinstate a health district or authority as approved to administer and enforce the private water systems program if the health district or authority can demonstrate to the satisfaction of the director an ability to adequately administer and enforce the provisions of this chapter.

(G) Upon determining that a health district or authority is so qualified, the director shall approve the district or authority. The director may resurvey any approved district or authority when, in the opinion of the director, such resurvey is necessary to determine whether the district or authority can adequately carry out the provisions of this chapter.

(H) If after a survey as provided for in this rule, the director determines that a health district or authority is not qualified to, or cannot adequately carry out the provisions of this chapter, the director shall certify that fact to the board of health and disapprove the health district or authority to administer and enforce the private water systems program. If a health district or authority is not eligible to administer and enforce this chapter, the director may designate another qualified health district or authority as the department in such health district or shall administer and enforce this chapter in such health district.

(I) If a health district is disapproved, the board of health shall pay to the director or to the board of health designated by the director to serve as the department in such health districts, all fees previously paid to the board under this chapter that have not been expended or encumbered. All fees paid to the director or to the designated board of health shall be used as specified in rule 3701-28-06 of the Administrative Code.

3701-28-06 Fees and fee categories.

(A) Boards of health of city or general health districts may establish fees in accordance with section 3709.09 of the Revised Code for the purpose of administering and enforcing the requirements of this chapter. The fees shall be established using the categories prescribed in paragraph (E) of this rule and the cost methodology prescribed by rule 3701-36-14 of the Administrative Code. Except for seventy-four dollars of the fee for each new private water system installation, as prescribed in paragraph (C) of this rule, no portion of any fee for administering and enforcing this chapter shall be returned to the Ohio department of health.

(B) The fees paid to a board of health of a health district under this chapter shall be paid to the treasurer and deposited in a special account for the health district to pay the cost of administering and enforcing this chapter as provided in sections 3701.344 and 3701.347 of the Revised Code. All fees paid to the director under this chapter shall be used by the director to pay the cost of administering and enforcing this chapter as provided in sections 3701.344 and 3701.347 of the Revised Code.

(C) Seventy-four dollars of each new installation permit fee collected by a board of health shall be transmitted by the board of health to the director for deposit into the general operations fund created by section 3701.83 of the Revised Code to pay his cost of administering and enforcing this chapter.

(D) In the event that the director administers and enforces this chapter in a health district in accordance with section 3701.344 of the Revised Code and paragraph (H) of rule 3701-28-05 of the Administrative Code, the following schedule of fees shall be in effect for the purpose of administering and enforcing the requirements of this chapter.

(1) A fee of five hundred ten dollars for the construction of a private water system, excluding a pond, for a one-, two-, or three-family dwelling, including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code and a fee of four hundred and sixty dollars for the construction of a test well.

(2) A fee of seven hundred fifteen dollars for the construction of a pond for a single family dwelling, including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code.

(3) A fee of five hundred sixty dollars for the conversion of a well not previously approved as a private water system into a private water system for a one-, two-, or three-family dwelling. These wells shall include, but not be limited to, agricultural wells, irrigation wells and geothermal wells.

(4) A fee of six hundred sixty-five dollars for the construction of a new private water system serving other than a one-, two-, or three-family dwelling, including a manufactured home park as defined in paragraph (K) of rule 4781-12-01 of the Administrative Code, or a campground as defined in paragraph (C) of rule 3701-26-01 of the Administrative Code, or a building.

(5) A fee of six hundred fifteen dollars for the conversion of a well not previously approved as a private water system into a private water system serving other than a one-, two-, or three-family dwelling. These wells shall include, but not limited to, agricultural wells, irrigation wells and geothermal wells.

(6) A fee of two hundred ninety dollars for the alteration of a private water system, for a one-, two-, or

three-family dwelling, including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code.

(7) A fee of two hundred ninety dollars for the alteration of a private water system serving other than a one-, two-, or three-family dwelling, including a manufactured home park as defined in paragraph (K) of rule 4781-12-01 of the Administrative Code, or a campground as defined in paragraph (C) of rule 3701-26-01 of the Administrative Code, or a building.

(8) A fee of fifty dollars for the sealing or decommissioning of a private water system for a one-, two-, or three-family dwelling including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code.

(9) A fee of fifty dollars for the sealing or decommissioning of a private water system serving other than a one-, two-, or three-family dwelling, including a manufactured home park as defined in paragraph (K) of rule 4781-12-01 of the Administrative Code, or a campground as defined in paragraph (C) of rule 3701-26-01 of the Administrative Code, or a building.

(10) A water sample collection fee of fifty dollars, provided that sample collection is not included as part of a valid alteration or new installation permit.

(11) A water hauler registration fee of two hundred thirty dollars and vehicle inspection fee of two hundred ten dollars conducted under paragraph (D) of rule 3701-28-16 of the Administrative Code. Inspection of each additional vehicle shall be a fee of twenty-five dollars.

(12) A fee of two hundred forty-five dollars for the issuance of a variance under rule 3701-28-21 of the Administrative Code. Fees for variances are not refundable.

(13) An additional fee that is twenty-five per cent of the fee specified in paragraphs (E)(1) to (E)(16) of this rule and added to those fees when the department determines that the construction, alteration or conversion of a private water system has commenced prior to a permit being issued or the hauling of water to a private water system has commenced prior to water hauler registration and vehicle inspection. This additional fee shall not be charged for sealing a well performed in compliance with paragraph (A)(1) of rule 3701-28-03 of the Administrative Code or an alteration or new construction performed in compliance with paragraph (J) of rule 3701-28-03 of the Administrative Code.

(E) Fees established by a board of health of a city or general health district pursuant to section 3709.09 of the Revised Code for private water systems shall be specified in accordance with the following categories:

(1) The construction of a private water system, excluding a pond, for a one-, two-, or three-family dwelling, including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code.

(2) The construction of a test well for any private water system.

(3) The construction of a pond for a single family dwelling, including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code. This fee is not required to be adopted by the board of health if the board of health has adopted a resolution prohibiting the construction of private

water system ponds within their jurisdiction in accordance with paragraph (A) of rule 3701-28-14 of the Administrative Code.

(4) The conversion of a non-potable well not previously approved as a private water system into a private water system for a one-, two-, or three-family dwelling. These wells shall include, but not be limited to, agricultural wells, irrigation wells and geothermal wells.

(5) The construction of a new private water system serving other than a one-, two-, or three-family dwelling, including a manufactured home park as defined in paragraph (K) of rule 4781-12-01 of the Administrative Code, or a campground as defined in paragraph (C) of rule 3701-26-01 of the Administrative Code, or a building.

(6) The conversion of a well not previously approved as a private water system into a private water system serving other than a one-, two-, or three-family dwelling. These wells shall include, but not be limited to, agricultural wells, irrigation wells and geothermal wells.

(7) The alteration of a private water system or a test well, for a one-, two-, or three-family dwelling, including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code.

(8) The alteration of a private water system or a test well serving other than a one-, two-, or three-family dwelling, including a manufactured home park as defined in paragraph (K) of rule 4781-12 -01 of the Administrative Code, or a campground as defined in paragraph (C) of rule 3701-26-01 of the Administrative Code, or a building.

(9) The sealing or decommissioning of a private water system for a one-, two-, or three-family dwelling including a manufactured home as defined by division (C)(4) of section 3781.06 of the Revised Code.

(10) The sealing or decommissioning of a private water system serving other than a one-, two-, or three-family dwelling, including a manufactured home park as defined in paragraph (K) of rule 4781-12-01 of the Administrative Code, or a campground as defined in paragraph (C) of 3701-26-01 of the Administrative Code, or a building.

(11) The alteration disconnection when connecting to a public water supply with the intention of retaining the use of the private water system source for alternative purposes in accordance with paragraphs (D)(1) to (D)(3) of rule 3701-28-17 of the Administrative Code. The alteration disconnection fee shall not be applied when a private water system source is disconnected with the intention of being sealed.

(12) The installation and subsequent decommissioning of a temporary hauled water storage tank for a specified time period in time limited emergency conditions.

(13) The issuance of a variance under rule 3701-28-19 of the Administrative Code. Fees for variances are not refundable.

(14) The filing and processing of water sample results collected under paragraph (DD) of rule 3701-28-03 of the Administrative Code.

(15) The construction and knowledge assessment inspection of a private water systems contractor as authorized under paragraphs (G) and (H) of rule 3701-28-04 of the Administrative Code.

(16) A water hauling company registration and additional vehicle or other water transportation equipment inspections conducted under paragraph (D) of rule 3701-28-16 of the Administrative Code. The water hauling company registration fee shall include the inspection of one vehicle or other water transportation equipment.

(17) An amount to be added to the applicable fees established under paragraphs (E)(1) to (E)(16) of this rule in accordance with section 3709.09 of the Revised Code when the board of health determines that:

(a) The construction, alteration or conversion of a private water system has commenced prior to a permit being issued.

(b) The hauling of water to a private water system has commenced prior to water hauler registration and vehicle inspection.

(c) This additional fee shall not be charged for sealing a well performed in compliance with paragraph (A)(1) of rule 3701-28-03 of the Administrative Code or an alteration or new construction performed in compliance with paragraph (J) of rule 3701-28-03 of the Administrative Code.

(F) In addition to the fees established by a city or general health district under paragraph (E) of this rule, a board of health of a city or general health district may specify:

(1) Fees for the collection and examination of any necessary water samples taken.

(2) Fees for supplying and/or hauling water from an unapproved water source to a private water system by a registered or unregistered water hauler.

(G) The city or general health district shall utilize the cost methodology specified in rule 3701-36-14 of the Administrative Code to calculate fees for providing services specified in sections 3701.344, 3729.07, 3730.03, and 3749.04 of the Revised Code.

3701-28-07 Location, operation, and maintenance of private water systems.

(A) Each private water system shall be properly maintained and operated according to the requirements of this chapter, and as follows:

(1) Where two or more dwellings are serviced by a private water system, the entire private water system shall be owned and maintained equally by all parties owning service connections served by the system.

(2) Where a private water system, or portion thereof, is not located on the same parcel as the service connection it serves, there shall be a legally recorded easement to allow access to the system by all parties for the purposes of maintenance, sampling, and repairs.

(B) A private water system shall be located only where the system and its surroundings can be maintained in a sanitary condition, and only where surface and subsurface conditions will not permit contamination of the private water system or aquifer. Where available, hydrogeologic data shall be used to select the location of a well or spring. Any well or spring used as a source of water for a private water system shall be located hydraulically up gradient of any potential or known sources of contamination unless determined by the board of health that no other practical site is suitable or available. The board of health shall document this determination in the permit file. A well or spring shall be located the maximum practical distance from a known or suspected source of contamination.

(C) A private water system shall be located so that it is accessible for cleaning, treatment, repair, alteration, testing, and such other attention as may be necessary.

(1) The walls of a concrete cistern or hauled water storage tank may share a common wall with another structure or be used as a supporting structure provided it is acceptable with local building codes or, where no building codes are applicable, a professional engineer.

(2) Plastic or fiberglass tanks for disinfection retention, supplemental water storage, and low yield well reservoir tanks less than one thousand gallons may be placed in the basement of a home.

(D) A well, spring box, or pond shall not be located within ten feet of the foundation of a building or dwelling, where termaticides are typically applied, except within a building designed and constructed solely to house a well or spring or pumping and water system equipment. A water well shall not be located closer than five feet to the edge of a deck or porch that is not part of the building foundation for a basement or crawl space, or a slab that has been extended from the residence or building due to limitations for access of large equipment for service.

(E) A new private water system shall not be located within a one hundred year floodplain or a special flood hazard area, except when the board of health determines that either the requirements of rule 3701-28-19 of the Administrative Code for a variance are met, or it is a replacement for an existing system as described in paragraph (E)(1) of this rule. The installation of a new or replacement private water system shall comply with section 1521.13 of the Revised Code or the floodplain management resolution or ordinance adopted by a county or municipal corporation under section 1521.18 of the Revised Code.

(1) A variance is not required for the replacement of a private water system already existing in a floodplain when no other sites are available on that property for construction of a private water system outside of the floodplain as determined from the pre-construction evaluation by the board of health. This information shall be indicated on the private water system application and permit prior to construction.

(2) A well constructed in a floodplain must meet the requirements of paragraph (U)(6) of rule 3701-28-10 of the Administrative Code.

(3) A new private water system shall not be constructed in a floodway.

(F) A water source shall not be located within a sanitary isolation radius of fifty feet of any known or possible source of contamination, except as specified in paragraph (I) of this rule.

(G) A water source shall be located at least ten feet from the established road right-of way. When no right-of-way has been designated, a water source shall be located at least twenty-five feet from the edge of any normal road driving surface or ten feet from any road utility easement, whichever is greater, as determined by the Ohio department of transportation, the county engineer, or local officials.

(H) Except for when a protective barrier has been constructed and all surface water is directed away from an existing well that is being altered or repaired, a water source shall be located at least five feet from the edge of any private driveway or parking lot.

(I) Watertight sewers and drains outside of the foundation of a building shall be located a minimum of ten feet from a water source or water distribution line when attainable except within five feet of the foundation where both lines enter a building and in circumstances when the water line and sewer line must cross. When a watertight sewer line crosses a water service line then the following applies:

(1) Provide a minimum vertical distance of twelve inches between the outside of the water service line and outside of the sewer. This shall be the case where the water line is either above or below the sewer with preference to the water line located above the sewer.

(2) At crossings, one full length of water pipe shall be located so both joints will be a minimum of ten feet from the sewer line and a twenty-foot length of larger diameter watertight pipe sleeve shall be installed on either the water service line or the sewer line and the pipe sleeve sealed for water tightness at both ends and any joints in the length of the larger diameter pipe sleeve. A water service line and sewer line shall not share the same trench except where they must cross.

(J) Any component of a private well water system located in a grassed pasture used by large animals shall be surrounded by a fence with all sides at least five feet from the well component. A water source shall be located according to the following minimum isolation distances listed in table 1:

Table 1: Isolation Distances

Row	Potential Source of Contamination	Isolation Distance (in feet)
1	Lot lines and easements	10
2	Any component of a sewage treatment system (STS) or gray water recycling system (GWRS)	50
3	A leaching pit or drywell that has not been properly abandoned to render it inoperable	100
4	Watertight vault privies	50
5	Leaching privies	100

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Table 1: Isolation Distances

6	Waste water treatment plant, except a well used by the facility	300
7	Drainage wells	100
8	Properly sealed well	5
9	Existing properly constructed private water system well	10
10	Existing properly constructed public water system well	outside the sanitary isolation radius of the public water well
11	Water wells or boreholes of unknown or unregulated unpermitted construction	50
12	Vertical open loop geothermal system, sealed with grout materials in compliance with rule 3701-28-09 of the Administrative Code and as documented by a well log on file with the Ohio department of natural resources	25
13	Horizontal or vertical closed loop geothermal system, utilizing propylene glycol as the heat transfer antifreeze	25
14	Horizontal or vertical closed loop direct exchange geothermal system with circulating refrigerant or a heat transfer antifreeze other than propylene glycol	50
15	Horizontal or vertical geothermal system of unknown or undocumented construction	50
16	Permanent bodies of water such as streams, lakes, ponds	25
	Storm water structure or other special conduits or other ditches with intermittent water flows not included in the road right-of-way	15
17	Bulk salt storage piles	100
18	Underground or above ground fuel oil, diesel, chemical or gasoline storage tanks or other refined or unrefined petroleum liquids (less than eleven hundred gallons)	50
19	Fuel operated motors used for well pumps without secondary containment	50
20	Underground or above ground fuel oil, diesel, chemical or gasoline storage tanks or other refined or unrefined petroleum liquids (greater than eleven hundred gallons without secondary containment)	300
21	Natural gas or propane (LP/liquid propane) home heating tanks above or below ground	20
22	Oil and gas wells or the oil and gas well pad, except a well that is used by the facility, which should be	100

Table 1: Isolation Distances

	constructed at the maximum practical isolation distance	
23	Municipal solid waste, residual waste, industrial waste, and class I, II, or III solid waste composting facilities, operating or closed, from the boundaries of the entire facility including the permitted boundaries of future waste placement, except a well that is used by the facility, which should be constructed at the maximum practical isolation distance	1000
24	Construction and demolition debris solid waste facility, and class IV solid waste composting facilities, except a well that is used by the facility, which should be constructed at the maximum practical isolation distance	500
25	A regional storage facility as defined in paragraph (DDDD) of rule 3745-40-01 of the Administrative Code or other bulk storage facility for biosolids (sludge), except a well that is used by the facility, which should be constructed at the maximum practical isolation distance	300
26	Animal waste management facility located at a major concentrated animal feeding facility (AFF)* as defined by division (N) of section 903.01 of the Revised Code, except a well that is used by the facility, which should be constructed at the maximum practical isolation distance	300
27	Animal waste management facility located at a large concentrated AFF* as defined by division (M) of section 903.01 of the Revised Code, except a well that is used by the facility, which should be constructed at the maximum practical isolation distance	300
28	Animal waste management facility located at a medium concentrated AFF* as defined by division (Q) of section 903.01 of the Revised Code, except a well that is used by the facility, which should be constructed at the maximum practical isolation distance	300
29	Animal waste management facility located at an AFF* not meeting the size designation of major, large, or medium concentrated AFF as defined in section 903.01 of the Revised Code, except a well that is used by the facility, which should be constructed at the maximum	150

Table 1: Isolation Distances

	practical isolation distance	
30	Animal housing or holding pens with no grass cover, stables, manure piles, fabricated manure storage and animal waste or treatment buildings not located at an AFF*	50
31	Land application of septage waste, manure, or biosolids (sludge) stockpile, storage or staging area where the Ohio environmental protection agency has determined the aquifer has a high susceptibility to contamination	300
32	Surface land application area for septage, biosolids (sludge), commercially land applied manure, or other similar materials previously approved by the Ohio environmental protection agency or the board of health	200
33	Subsurface incorporation application area using septage, biosolids (sludge), commercially produced manure, or other similar materials previously approved by the Ohio environmental protection agency or the board of health	100
34	Storage or preparation area for commercial application of fertilizers or pesticides	150
	*For the purposes of this rule, "AFF" means "animal feeding facility" as defined in section 903.01 of the Revised Code.	

(K) For purposes of determining compliance with the minimum distance requirements of this rule, all measurements shall:

(1) Be performed on-site;

(2) Be measured from the boundary of the water source closest to the boundary of the structure or potential source of contamination;

(3) When the distance is from a regulated facility or some portion thereof, the regulating authority has scale plans of the facility on file, and these plans are accessible to the health district for verification of the distance from the potential source of contamination to the point of the facility boundary nearest to the private water system, the on-site measurement from the private water system source to the nearest facility boundary may be added to the distance from the facility boundary to the potential contamination source shown on the facility plans;

(4) For construction of a new private water system on a new building lot, be within two per cent from the boundary of minimum isolation distance requirements for any on-site sewage treatment system and ten per cent from the boundary of the required minimum distances for all other isolation distance requirements set in this rule, unless otherwise specified;

(5) For replacement of a private water system at an existing home or building, be within ten per cent of the

minimum required distance without the requirement for a variance when the maximum practical isolation distance from all potential sources of contamination and existing structures is maintained;

(6) When a private water system is to be constructed where the system cannot meet all of the isolation distances of this rule, then the isolation distances shall be maintained at the greatest practical distances from sewage systems, petroleum tanks, roads and right of ways, waste application staging areas, and landfills, in this order. When an isolation distance priority is not specified here, then the board of health shall use their best professional judgment for system placement.

(L) The board of health in consultation with the department may set an isolation distance in excess of those set forth in this rule for a specific site if conditions are determined to exist at a site during a pre-construction evaluation where the distance set forth in this rule is considered insufficient to protect the public health and the private water system from contamination. The additional requirement will not require a variance and shall be described on the application and permit prior to activation of the permit by the board of health.

(M) The board of health or the department may order the replacement or sealing of any private water system existing before the effective date of this rule that does not meet the current isolation distance requirements if it has been determined that a potential health threat exists from the continued use of the system.

(N) A private water system owner shall be responsible for maintaining minimum isolation distances within property owned by the water system owner.

3701-28-08 Pumps, pressure tanks, and other requirements for all private water systems.

(A) If the department or board of health determines that any private water system, any part thereof, or any appurtenance thereto, is being maintained in such a fashion, has deteriorated to such an extent, has been abandoned, that a safety hazard exists or contaminants might enter ground water or the potable water supply so as to constitute a public health hazard, the department or board of health shall order such work to be performed on the private water system as is deemed necessary to prevent contamination of the ground water or the supply to protect public health or safety. If there is known groundwater contamination in an area, the board of health or the department may require access be provided for sampling of a private water system in that area for such parameters as are necessary to determine if the private water system is impacted by or contributing to the contamination, and may order such work as is necessary to ensure that the existing private water system does not contribute to the transport of the contamination.

(B) All pipe and fittings utilized in the water piping system of a private water system outside and inside of a house or building, shall be of materials conforming to table 1 and 2 of this rule. All pipe and fittings utilized in private water systems shall also conform to NSF 61-2016.

(C) All pipes and valves shall also be protected from freezing or other physical damage. Valves shall be installed so that they are accessible from the surface of the ground by means of an open stack.

(D) All pipe fittings and nipples shall be approved for installation with the pipe material and shall conform to the respective pipe standards or one of the standards listed in table 605.5 or table 605.8 of rule 4101:3-6-01 of the Administrative Code. All pipe fittings and nipples utilized in private water systems shall also conform to NSF 61-2016.

Table 1: Water service pipe (outside use)

MATERIAL	STANDARD
Copper or copper alloy pipe	ASTM B42-2015a; ASTM B302-2017
Copper or Copper alloy tubing (Type K, WK, L, WI, M or WM)	ASTM B75/B75M-2011; ASTM B88-2016; ASTM B251-2017; ASTM B447-2012a
Chlorinated polyvinyl chloride (CPVC)	ASTM D2846/D2846M-2017be1; ASTM F441/F441M-2015; ASTM F442/F442M-2013e1; CSA B137.6 2017
Ductile iron water pipe	AWWA C151 2009; AWWA C115 2011
Polybutylene (PB) plastic pipe and tubing	CSA B137.8 2017
Polyethylene (PE) plastic pipe	ASTM D2239-2012a; CSA B137.1 2017
Polyethylene (PE) plastic tubing	ASTM D2737-2012a; CSA B137.1 2017
Cross-linked polyethylene (PEX) plastic tubing	ASTM F876-2017; ASTM F877-2018; CSA B137.5 2017
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785-2015e1; ASTM D2241-2015; ASTM D2672-2014; CSA B137.3 2017
Stainless-steel	ASTM A269/A269M-2015a; ASTM A312

Table 1: Water service pipe (outside use)

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Table 2: Water distribution pipe (inside use)

MATERIAL	STANDARD
Brass pipe	ASTM B43-2015
Chlorinated polyvinyl chloride (CPVC)	ASTM D2846/D2846M-2017be1; ASTM F441/F441M-2015; ASTM F442/F442M-2013e1; CSA B137.6 2017
Copper or copper alloy pipe	ASTM B42-2015a; ASTM B302-2017
Copper or Copper alloy tubing (Type K, WK, L, WI, M or WM)	ASTM B75/B75M-2011; ASTM B88-2016; ASTM B251-2017; ASTM B447-2012a
Cross-linked polyethylene (PEX) plastic tubing	ASTM F877-2018; CSA B137.5 2017
Polybutylene (PB) plastic pipe and tubing	CSA B137.8 2017
Polyvinyl chloride (PVC) plastic pipe	ASTM D1785-2015e1; ASTM D2241-2015; ASTM D2672-2014; CSA B137.3 2017
Stainless-steel	ASTM A269/A269M-2015a; ASTM A312/A312M-2017

(E) Each private water system shall be equipped with a down turned sampling faucet for the sole purpose of collecting water samples. The down turned sampling faucet shall:

(1) Be installed at or as close as possible to the pressure tank, extended from the pressure tank to an accessible location outside the foundation walls, or at the first accessible point as it enters a building and before any treatment or disinfection device;

(2) Be equipped with an additional down turned sampling faucet just after each stage of the treatment system, retention tank of the treatment system or ultraviolet light disinfection system for any private water system requiring continuous disinfection or other point of entry treatment system;

(3) Be easily accessible and not located in a confined space or crawl spaces, unless the pressure tank and sample faucet are installed within three feet of the crawl space entrance, or unless the crawl space is of a reasonable height for walking access by an average sized adult;

(4) Be installed not less than eight inches above the floor or ground surface and in a location with sufficient area and access to place a container for capturing the flushed water;

(5) Be installed with a down turned angle no less than forty-five degrees from the horizontal;

(6) Be a non-threaded sample faucet that provides a controllable flow of water for proper sampling;

(7) Not have an attached or built-in check valve which may harbor microbial contamination; and

(8) Be placed prior to any backflow prevention device (ASSE 1013 2011, ASSE 1015 2011, or ASSE 1024 2004), except for wells directly supplying a cistern or other water storage tank.

(F) No person shall install or maintain a private water system with any actual or potential cross-connections to a public water system unless such actual or potential cross-connections are abated to controlled to the satisfaction of the supplier of the public water, in accordance with rule 3745-95-02 of the Administrative Code.

(G) No person shall install or maintain a private water system where physical cross-connections to another private water system or source exists unless:

(1) The private water system is constructed as a combination of one or more types of water supply sources;

(2) The private water system shall have an approved backflow prevention device installed in line prior to any connections from other water sources to prevent the backflow of one water source into another and a sampling faucet placed prior to the backflow prevention device; and

(3) Each corresponding supply component shall meet the requirements of this chapter for that type of water supply component.

(H) No person shall install or maintain a connection within a private water system which could pollute the water system or provide a cross-connection between a source of contamination and the water system unless an approved backflow prevention device or other approved engineering control is installed.

(I) An approved backflow prevention device shall be installed to protect all service connections where necessary to prevent a potential health or contamination hazard.

(J) All backflow prevention devices installed on a service line shall comply with ASSE 1013-2011, ASSE 1015-2011 or ASSE 1024-2004.

(K) All service connections, including a yard hydrant, to the main service line shall have an approved backflow prevention device installed prior to or immediately after the connection to the main service line. The backflow prevention device shall be easily accessible within a vault, equipment storage pit or the foundation of the home or building for the purposes of inspection and maintenance.

(L) Except for single family dwellings, and private water systems serving two dwellings on the same or adjacent lots, an ASSE 101312011 or ASSE 1015-2011 backflow prevention device shall be installed when the main service line is supplying water to more than one service connection. Additional service line connections branching off of service connections from the main service line shall have a ASSE 1013-2011, ASSE 1015-2011 or ASSE 1024-2004 backflow prevention device installed immediately after the connection to the service line unless the unit being supplied meets the requirements in paragraph (M) of this rule or meets the requirements in Chapter 3701-26 of the Administrative Code.

(M) Service line connections supplying water to a yard hydrant meeting ASSE 1057-2012 or as approved by the department shall not be required to have a backflow prevention device installed prior to the yard hydrant. For yard hydrants meeting this standard, the department may require a backflow prevention device, meeting ASSE 1024-2004, on the hose bib to prevent backflow or backsiphonage. All other yard hydrant service line connections shall meet the requirements in paragraph (J) of this rule.

(N) A room housing pumping equipment shall:

(1) Allow access for maintenance, alteration, removal, and repair of the private water system components.

(2) Be constructed above the ground surface, except if the room is constructed as a basement, a basement

offset, crawl space, or buried vault that does not accumulate water.

(O) Pump construction, installation, design and maintenance shall comply with the following:

(1) A pump shall be constructed so that there are no unprotected openings into the interior of the pump or well casing.

(2) Any fuel operated motor used to power a pump shall meet the isolation distances specified in Table 1 of rule 3701-28-07 of the Administrative Code or shall be installed within a watertight secondary containment vessel that is capable of containing at least 2.5 times the maximum capable volume of fuel stored within the motor.

(3) Any plastic pump drop pipes used shall be in compliance with material requirements for pipe as required under rule 3701-28-08 of the Administrative Code and the pressure rating of the drop pipe shall be adequate to withstand the total pressures in the system, and the depth of installation. Drop pipes and check valves shall not have holes installed for drainage.

(4) Any submersible pump motor lubricants and vertical turbine shaft lubricants used shall be United States department of agriculture (USDA) or food and drug administration (FDA) approved food contact grade formulations or NSF 61-2016.

(5) Only potable water shall be used for priming pumps.

(6) If not already integrated into the design of a submersible pump by the manufacturer, a check valve shall be installed no greater than twenty-five feet from the top of submersible the pumps.

~~(8)~~ (7) Pumps shall be installed at a depth and configuration that is appropriate to the well construction and as recommended by the pump manufacturer.

(P) The installation of hand pumps shall comply with the following:

(1) A hand pump, hand pump head, hand pump stand, or similar devices shall:

(a) Be constructed in accordance with paragraph (O) of this rule;

(b) Provide for venting as required under paragraph (Q)(5) of rule 3701-28-10 of the Administrative Code; and

(c) Have a closed downward directed spout and a sealed pump rod packing assembly.

(2) A hand pump shall be attached to the well casing by a sealed flange with a rubber gasket, or other method approved by the department, to adequately prevent the entrance of surface water, dirt, animals, insects, or other foreign matter and to provide a watertight connection. The flange shall be not less than twelve inches above a concrete slab or the ground surface. Any annular space between a standpipe and well casing shall be sealed in accordance with paragraph (I) of rule 3701-28-10 of the Administrative Code.

(3) Where a well casing functions as a hand pump cylinder wall, the plunger shall be not less than twenty-five feet below the ground surface. A casing wall weep hole is not permitted.

(4) A hand pump shall not be installed by constructing a hole or opening in a well cap.

(Q) Water suction lines shall be constructed of materials approved under this rule.

(R) Pressure tanks, in-well pressure tanks, and constant pressure systems installed for private water systems shall meet the following requirements:

(1) Except for in-well pressure tanks, a pressure tank shall be installed in a basement, basement offset, pump room, or buried vault on the property of the well owner.

(2) Pressure tanks shall not be buried, unless the unit has been adequately designed for such use with manufacturer specifications for its installation as a buried pressure tank and the board of health has determined that space for above ground installation is limited. Buried pressure tanks shall be installed above the water table.

(3) For new construction a pressure tank shall not be located in a crawl space, unless the crawl space is reasonably accessible by walking by an average size adult from the inside or outside of the home or building, for inspection and sampling by the board of health. A pressure tank and sampling port shall be located no more than three feet from the entrance to a crawl space that is not accessible by walking by an average size adult.

(4) Except for jet pump installations, pressure tanks shall have a pressure relief valve or one shall be installed in the private water system prior to the distribution system shut-off.

(5) Pressure tanks shall meet NSF standard 61 2016.

(6) In-well pressure tanks designed to be installed in a well shall be installed in accordance with the manufacturer's requirements.

(S) Water storage tanks and reservoirs shall meet the criteria of paragraphs (A) and (B) of rule 3701-28-12 of the Administrative Code and also comply with all other applicable provisions of rule 3701-28-12 of the Administrative Code. For the purpose of this rule, a storage tank does not include a pressure tank.

(T) Private water systems discharging to a non-pressurized reservoir tank must be protected by a backflow prevention device that meets the requirements of ASSE 1013-2011, ASSE 1015-2011, or ASSE 1024-2004 prior to entering a reservoir tank.

(U) Any person intending to alter a well located in a pit or vault, where the pit or vault will not be used to house other systems equipment shall:

(1) Extend the well casing a minimum of twelve inches above the top of the pit or vault walls, or above the natural ground level, whichever gives the greater height.

(2) Remove all other private water systems components from the pit or vault and fill the pit or vault by collapsing at least one wall, breaking up the floor, and removing all drains.

(3) Place a six inch deep layer of bentonite around the base of the casing prior to placement of fill materials in the pit or vault, and fill the remaining area in teh pit or vault with a clay-based soil.

(V) Any person intending to alter a well located in a pit or vault, and use a portion of the pit or vault for housing other private water systems components, shall comply with paragraphs (U)(1) and (U)(3) of this rule, and shall also construct a new wall in the pit or vault to separate the well from the other system equipment. The wall shall be of sufficient strength and be watertight, and the outer diameter of the casing shall be a minimum of twelve inches from the outside edge of the new wall of the pit or vault to allow for twelve inches of backfill around the casing.

(W) Any person intending to construct or alter a private water system with a pit or vault used specifically for the storage of the private water components, such as the pump and pressure tank, shall either add a drainage outlet with backflow protection to the existing pit or vault which will eliminate standing water in the pit or vault, or if a drain does not exist, install a backflow prevention device where the water service line enters the vault or pit.

(X) If any part of the pump, distribution system, or any connection malfunctions or becomes defective in such a fashion that contamination may occur, the pump or connection or part of the distribution system shall be promptly repaired or replaced as necessary to prevent contamination.

(Y) All electrical connections for private water system controls and motors shall be installed in accordance with the manufacturer's specifications.

3701-28-09 Materials used in drilling and construction of wells.

(A) Materials used in the drilling process shall meet the following requirements:

(1) All materials used in the well construction process shall be stored and transported in a manner to prevent or reduce contamination of the materials prior to placement in the well.

(2) Materials that are in contact with ground water shall be free of matter that may adversely affect the aquifer or water pumped from the well and shall not promote microbiological growth.

(3) All drilling fluids, additives, and lubricants shall meet NSF 60-2016, NSF 61-2016 or be of food grade quality and shall not be discharged to surface water. Drilling fluids or additives that contain guar gum or other biodegradable organic materials shall not be used during the drilling of a well.

(4) Water that is used for drilling purposes, other than water from the well itself, shall be water from an approved private or public water system and shall be conveyed in containers that are clean and capable of being maintained in a clean condition. Surface water shall not be used for drilling purposes unless it is obtained from a public water supply. Storage tanks used to haul water for drilling shall be periodically disinfected by the registered contractor. Private water systems which are used to provide water for drilling purposes shall be subject to the annual water sampling and reporting requirements of paragraph (DD) of rule 3701-28-03 of the Administrative Code.

(5) Drilling cuttings shall not be discharged into a well pit, other wells, surface water, or surface water conveyance or placed into the annular space of a well.

(B) Materials used in the construction of wells shall meet the following requirements:

(1) Steel pipe or tubing used as permanent primary or secondary well casing, liners, well screen risers, blanks, or tail pipes which are directly connected to the well screen by welding or threading shall:

(a) Be new pipe or tubing or pipe that meets the requirements of this paragraph;

(b) Be manufactured in compliance with the standards of ASTM specification A53/A53M- 2012, A106/A106M-2018, A589/A589M-06-2012, A500/A500M-2018 or in compliance with the standards of API specification 5L-2012 or 5C-2011;

(c) Have a minimum wall thickness of .188 inches if the nominal pipe size is five inches through ten inches.

(d) Have a minimum wall thickness of .375 inches if the nominal pipe size is twelve through twenty inches. Be standard weight, as set forth in ASTM specifications A53/A53M-2012, A106/A106M-2018, A589/A589M-06-2012, API specification 5L-2012 and 5C-2011, if the nominal pipe size is twenty-one inches or greater.

(e) Be legibly marked on each length or provided by written documentation by the manufacturer, with all of the following information:

(i) The name of the manufacturer;

(ii) The kind of pipe (continuous welded, electric resistance welded or seamless);

(iii) The weight or schedule;

(iv) The nominal or outside diameter;

(v) The specification number; and

(vi) The heat or lot number.

(f) Be structurally sound, watertight throughout its length, and shall have threaded and coupled, or welded joints;

(i) Couplings shall have a design, taper, and type of thread that is consistent with the thread of the pipe. No more than three threads shall be exposed on fourteen thread pipe and no more than two threads shall be exposed on eight thread pipe.

(ii) Welded joints shall form a structurally sound and watertight joint and may include the use of butt-welds using a welding collar or guide, band rings, or flared joints. Butt welds shall have a beveled to beveled edge. Steel pipe that is equal to or less than eight inches in diameter shall have a minimum of two weld passes, or buttwelding of any size pipe without the use of a collar, band or flared joints shall have a minimum of three weld passes. Steel pipe that is greater than eight inches in diameter shall have a minimum of three weld passes.

(iii) When steel pipe is being driven, the weld bead shall extend one-eighth of an inch from the pipe surface in order to assist the placement of grout using the dry driven grout method.

(2) Thermoplastic pipe that is used as permanent primary or secondary well casing, liners, well screen risers, blanks, or tail pipes shall:

(a) Be new pipe that is manufactured in compliance with the standards of ASTM specifications F480-2014, and NSF 14-2016;

(b) Be standard dimension ratio (SDR) twenty-one or heavier, except thermoplastic pipes that are larger than eight inches in diameter or installed at depths greater than two-hundred feet which shall be SDR seventeen or heavier. Thermoplastic pipe used as a liner may be less than SDR twenty-one. For purposes of this paragraph standard weight ratio or SDR means the ratio of average outside pipe diameter to minimum pipe wall thickness;

(c) Comply with dimensional standards for thermoplastic pipe as specified in ASTM specification F480-2014;

(d) Be legibly marked, by the manufacturer, with all of the following information:

(i) The nominal pipe size;

(ii) The standard dimension ratio;

(iii) The type of plastic;

(iv) The words "well casing";

(v) The impact classification (IC);

(vi) The specification number;

(vii) The manufacturer's name or trademark;

(viii) The lot number and date of manufacture; and

(ix) A certification mark that verifies compliance with NSF 14-2016.

(e) Be structurally sound, watertight throughout its length with casing joints or couplings that conform to one of the following:

(i) Except as provided in paragraph (B)(2)(e)(ii) of this rule, all thermoplastic casing joints and couplings shall meet the standards of ASTM specification F480-2014 and NSF 14-2016.

(ii) Spline lock joints shall be permitted for use in wells with casing constructed of thermoplastic, and need not meet the standards of ASTM specification F480-2014. For purposes of this rule a spline lock joint is a non-metallic, watertight coupling designed for thermoplastic pipe which incorporates the use of a bell or coupling with machined grooves on the interior of the bell or coupling, and is joined by inserting thermoplastic pipe with an elastomeric sealing gasket which seats into the machined grooves, and is locked in place by insertion of a high-strength flexible thermoplastic spline to provide full three hundred and sixty degree restraint with evenly distributed loading on the joint.

(iii) All thermoplastic couplings shall be legibly marked with the nominal well casing pipe coupling size, the type of plastic, designation of compliance with ASTM F480-2014 and NSF-14-2016, and the manufacturer's name or trademark.

(iv) Thermoplastic well casing joints that are solvent welded shall meet the standard of ASTM specification F480-2014 and NSF 14-2016.

(v) Screws may be used to join permanent primary or secondary thermoplastic casing during installation provided the screws are stainless steel, self tapping, and no larger than number ten in size. Screws used to join permanent primary or secondary thermoplastic casing shall not fully penetrate through the inside of the innermost casing where the casing ends overlap, and shall be centered approximately where the casing ends overlap. Pilot holes shall be predrilled prior to joining the casing and shall only be drilled into the outermost casing end.

(3) Large diameter corrugated fiberglass casing that is used as primary or secondary casing shall meet NSF 61-2016 and conform to the following specifications:

(a) Shall have a minimum wall thickness of 0.18 inches.

(b) Shall have a vertical load bearing capacity of at least thirty thousand pounds and a horizontal load bearing capacity of at least sixty pounds per square inch.

(c) Shall be joined by a bell and splicket joint that is fastened in accordance with the manufacturers

instructions and sealed using an NSF approved sealant to provide a watertight seal.

(d) Shall have well caps provided by the casing manufacturer that are compression molded with a smooth inner and outer surface. The cap and rim thickness shall provide for a minimum vertical load of thirty thousand pounds. The well cap shall be secured in accordance with the manufacturer's recommendations and shall provide a vermin proof seal.

(e) Caps for buried seal construction shall be provided by the manufacturer and shall provide a water tight seal to the primary casing and to the casing used for extension above the natural ground surface. Casing used for extension shall be a minimum of six inches in diameter.

(f) Flow sleeves shall be installed over the bottom of submersible pumps placed in large diameter wells as appropriate.

(C) Defective, visibly damaged, used, or manufacturer designated limited use, or reject pipe shall not be used as casing or liner pipe for wells. Pipe withdrawn from a well or test hole during initial construction may be used as casing or liner pipe for another well provided the pipe meets the following requirements:

(1) The pipe has not become impregnated with any contaminant, including but not limited to natural gas and crude oil, during a previous use;

(2) The pipe meets the applicable requirements of paragraph (B) of this rule; and

(3) Has been visually inspected by the registered contractor for pinholes, cracks or other defects or damages.

(D) Couplings used to join well casing of dissimilar materials or sizes shall conform to the following criteria:

(1) Have the same or better strength and rigidity of the well casings being joined together.

(2) Be composed of a cast steel unit joined by a minimum of four steel bolts spaced uniformly around the circumference of the coupling.

(3) Use a ramped compression gasket seal that fits between the upper and lower portions of the coupling to ensure a watertight seal.

(4) Ensure that a minimum of two inch length of the top and bottom casing end is contained within both the top and bottom pieces of the coupling.

(5) Ensure that the coupling is centered over the joint.

(6)

(E) Drive shoes attached to the bottom of steel casing shall be a factory manufactured forged steel unit with a cutting edge.

(F) Cement grout to be used for sealing the annular space in wells or to seal a well shall conform to the following:

(1) Cement grouts which meet ASTM standard C150/C150M-2018 or API Spec 10A (R2015)-2010 and NSF 60-2016 and include:

(a) Type I, general purpose cement;

(b) Type II, for use in waters with moderate sulfate content of one hundred and fifty to fifteen hundred milligrams per liter, and conditions requiring lower heat of hydration;

(c) Type III, for use in conditions requiring high early strength;

(d) Type IV, for use in conditions requiring low heat of hydration;

(e) Type V, for use in ground waters with a sulfate content greater than fifteen hundred milligrams per liter;

(f) Concrete grout for special sealing conditions identified in rule 3701-28-17 of the Administrative Code.

(2) Cement based grouts shall be placed in accordance with rule 3701-28-10 of the Administrative Code and shall meet the the following requirements:

(a) Cement grouts shall be mixed using potable water according to the following specifications:

(i) Type I, II, IV, and V cement shall be mixed by adding 5.2 gallons of water per ninety-four pounds of cement with a minimum density of fifteen pounds per gallon.

(ii) Type III cement shall be mixed by adding 6.3 to seven gallons of water per ninety-four pounds of cement.

(iii) Concrete shall be mixed by adding ninety-four pounds of cement, an equal amount of fine or medium sand, and no more than six gallons of water with a minimum density of 17.5 pounds per gallon. Aggregate sizes greater than medium sand up to three quarter inch gravel may only be used in concrete mixes being used to seal large diameter holes such as dug wells and bored wells.

(iv) Cement that has calcium chloride added as an accelerator to speed up the rate of curing shall be mixed by adding two to four pounds of calcium chloride per ninety-four pounds of cement and six gallons of water with a minimum density of fifteen pounds per gallon.

(v) Cement grouts shall not have greater than thirty per cent bentonite added to the total volume of grout required. Bentonite added to cement grout shall be free of any polymers.

(b) Cement grouts shall be placed into a well by the conductor pipe pumped or halliburton method of pressure grouting, or may be gravity poured into a dry hole where no water is present in the well or borehole.

(3) Cement grout shall be allowed to set a minimum of twenty-four hours when standard type I and type II cement is used or when calcium chloride has been added to the cement grout. Cement grout shall be allowed to set a minimum of twelve hours when high early type III cement grout is used before drilling operations are resumed.

(G) Bentonite grout to be used for sealing the annular space in wells or for sealing wells shall conform to the following specifications and be placed in accordance with rule 3701-28-10 of the Administrative Code:

(1) Except for annular space grout placement using the dry driven grout method, the total volume of sealing materials used shall not be less than eighty per cent of the total volume required for the space to be

filled.

(2) Bentonite grouts shall meet NSF 60-2016 and include:

(a) High solids bentonite grout using powdered bentonite for use as drilling fluids.

(b) Granular bentonite for mixing as a slurry for pressure grouting the annular space or sealing a well or borehole, or for dry-driven grouting of the annular space.

(c) Granular bentonite for dry pouring or dry driving in the annular space or for sealing wells and boreholes.

(d) Coarse grade or pelletized bentonite for dry pouring into the annular space or for sealing wells or boreholes.

(3) When using bentonite grout, the following requirements shall be met:

(a) Bentonite based grout slurries shall be mixed according to the manufacturer's recommendations to achieve a minimum solids content of twenty per cent bentonite by weight of water. Synthetic organic polymers that meet NSF 60-2016 may be added to bentonite slurries to suppress hydration of the bentonite particles and shall be mixed according to the manufacturer's recommendations.

(b) Bentonite grout slurries shall be placed into the well by pressure grouting using the conductor pipe-pumped, grout displacement, grout-shoe continuous injection, or halliburton method of pressure grouting.

(c) Bentonite grout slurries shall not be used when the total dissolved solids of the water in the annular space to be grouted exceeds fifteen-hundred milligrams per liter of total dissolved solids, unless it is determined that the dissolved iron levels are less than fifteen milligrams per liter, chloride levels are less than five hundred milligrams per liter, and calcium levels are less than five hundred milligrams per liter. Coarse grade or pelletized bentonite shall not be used when the total dissolved solids of water in the borehole or well exceeds fifteen-hundred milligrams per liter.

(d) Water used for mixing bentonite grout slurries shall be treated to remove excess minerals from the water that may interfere with the proper hydration of the bentonite.

(H) Coarse grade and pelletized bentonite to be used for sealing the annular space in wells or for sealing wells shall conform to the following specifications~~:~~ and be placed in accordance with rule 3701-28-10 of the Administrative Code:

(1) Coarse grade or pelletized bentonite shall be poured slowly into the top of the well or dry hole to prevent bridging in the casing or borehole, in accordance with the following procedures:

(a) Coarse grade or pelletized bentonite shall be poured over a wire mesh screen to keep the fine bentonite powder from entering the well or dry hole.

(b) Course grade or pelletized bentonite shall be poured at the manufacturer's recommended rate of placement. If no manufacturer's recommendation is available, course grade or pelletized bentonite may be placed at a continuous rate no faster than three minutes per fifty pounds; unless, the grout

has been prescreened on-site to remove accumulated powder or other fine material, then it may be placed no faster than two minutes per fifty pounds.

(c) The pouring process shall be halted intermittently to lower a weighted measuring tape into the well to determine the top of the sealing products and confirm that bridging has not occurred. A tamping device shall be used where possible to break any bridges that may form.

(d) Where the borehole or well is dry, the bentonite must be periodically hydrated with water in accordance with the manufacturer's requirements. Pelletized bentonite shall not be hydrated during the pouring process and may only be dry poured into a dry well or borehole.

(2) Fine bentonite particles that accumulate in the shipping container shall not be used except to top off a borehole or well at the ground surface.

(I) Except for the special conditions described in rule 3701-28-17 of the Administrative Code, clean clay, sand, or gravel shall not be used for sealing wells.

(J) Other materials may be approved for use as a sealing material or in the annular space if determined by the director to have permeability and sealing characteristics sufficient to protect ground water and public health.

(K) Well screens used in unconsolidated or incompetent geologic formations shall meet the following criteria:

(1) Screens shall be factory manufactured and constructed of steel, fiberglass or thermoplastic and shall meet NSF 61-2016.

(2) Screens shall have uniform openings and sufficient length to provide a recommended entrance velocity of 0.1 feet per second under normal pumping conditions. Screen slot sizes shall be properly sized to facilitate proper well development and maintenance, and minimize the entrance of fine materials into the well.

(3) Screens shall provide sufficient column and collapse strength to withstand installation and borehole pressures.

(4) With the exception of fiberglass casing, hand drilled holes or slots in casing are not permitted for use as well screens. Cut, torched or burned openings in well casing to construct a screen is also prohibited.

(5) Screens shall be attached to permanent primary or secondary well casing by welding, threading, coupling or a K packer. The use of a shale trap to join a screen to casing is prohibited.

(6) Screens shall be fitted with a solid cap at the bottom unless the bottom of the screen is joined to additional permanent primary or secondary casing. Screens that are placed by telescoping must have a sealed bottom cap.

(L) Filter packs and formation stabilizer materials installed in the annular space of wells shall consist of particles that are:

(1) Ninety-five per cent siliceous in composition;

(2) Smooth, uniform, and free of foreign matter;

(3) Properly sized, washed and completely disinfected by liquid sodium hypochlorite prior to installation in the well; and

(4) Packers and shale traps installed in wells shall be constructed of materials that are approved for use by the department. Lead packers shall not be used in wells.

3701-28-10 Well construction, alteration and maintenance.

Wells used as private water systems shall be constructed to comply with the requirements of this rule.

(A) During the construction, alteration or maintenance of a well, steps must be taken by the owner and the private water systems contractor to minimize the entrance of contaminants into the well.

(1) If construction of the private water system is not complete and the private water systems contractor must leave the well site while the equipment is still on site, the contractor shall ensure that the annular space or borehole is securely covered to prevent the entrance of contaminants, and prevent a safety hazard for animals and people.

(2) If the drilling rig is to be removed from the site before the installation of casing and grout, the borehole shall be secured to prevent collapse or shall be sealed.

(3) Open boreholes without casing, grouting and a proper cap installed shall not be left open for more than ten days unless the private water systems contractor documents to the local health district that extenuating circumstances including, but not limited to, equipment repair delays or illness are preventing the completion of the well.

(B) Drive points shall only be used to construct a well when geologic conditions or site conditions preclude the use of or access by conventional drilling equipment and methods, such as cable tool, driven casing hammer, and air and mud rotary.

(1) Additional plans shall be submitted for drive point well construction indicating justification for the installation of a drive point well in accordance with paragraph (G)(6) of rule 3701-28-03 of the Administrative Code.

(2) The local board of health shall review the site prior to construction to confirm that a drive point is the only possible method for use on the site.

(3) For purposes of this rule drive point means a small diameter well less than three inches in diameter that is installed by manually or mechanically driving the casing into the ground.

(4) Drive points shall not be constructed on an emergency basis.

(5) The user shall have test strips or test kits to prescreen for nitrates and chlorides.

(6) The private water system shall have a legible label placed on the pressure tank or near the system which contains language provided by the department describing the process of and providing recommendations regarding prescreening and testing for nitrates and chlorides. It shall be the responsibility of the installing private water system contractor to ensure that the tanks and components are properly labeled.

(C) A well shall contain permanent primary casing, and secondary permanent casing, if necessary, that meets the requirements of rule 3701-28-09 of the Administrative Code.

(1) Except when drive points are used in accordance with paragraph (B) of this rule and as provided in this paragraph, the nominal pipe size of permanent primary casing shall be a minimum of five inches and sized to allow the well to produce water that is adequate for the intended use, and to allow for the installation and maintenance of the well and related pumping equipment.

(2) The casing shall be installed sufficiently straight and vertical and centered within the borehole.

(3) All primary and secondary casing and casing joints shall be watertight.

(4) Except when geologic or hydrogeologic conditions require additional casing construction requirements, casing shall extend continuously to the top of the aquifer being used for water supply or be firmly seated or extend into the competent solid, non-weathered, non-water bearing bedrock formation above the uppermost aquifer being used for water supply.

(5) Primary casing installed into consolidated formations shall be adequately seated in a competent geologic formation.

(6) Casing shall not extend less than twenty-five feet below the natural or original ground surface except for where geologic and hydro-geologic conditions indicate potable water is not present at depths greater than twenty-five feet.

(a) Private water systems contractors shall notify the local board of health within ten business days when less than twenty-five feet of casing has been installed in a well.

(b) Under no conditions shall casing for a well extend to a depth of less than ten feet.

(c) Except for drive points, wells with less than twenty-five feet of casing and no less than fifteen feet of casing shall require continuous disinfection in accordance with rule 3701-28-15 of the Administrative Code.

(d) Wells with less than fifteen feet of casing shall require continuous disinfection and cyst reduction in accordance with rule 3701-28-15 of the Administrative Code. A variance to this rule by the board of health shall not be permitted.

(D) In addition to the requirements of paragraph (C) of this rule, if non-potable water is encountered:

(1) Above an aquifer containing potable water, the casing shall extend to the bottom of the aquifer containing the non-potable water, or as deep as necessary to prevent the non-potable water from entering the aquifer containing potable water;

(2) Below an aquifer containing potable water, the lower portion of the well shall be filled with cement grout or bentonite grout, to a height sufficient to prevent entrance of non-potable water into the aquifer containing potable water.

(E) In addition to the requirements of paragraph (C) of this rule, wells completed where multiple aquifers are present shall have the casing extend through aquifers that are not contributing to the water supply of the well. The annular space contiguous to aquifers that are not contributing to the water supply of the well shall be grouted in accordance with rule 3701-28-10 of the Administrative Code.

(F) Except for flowing wells meeting the conditions of paragraph (P) of this rule, in addition to the requirements of paragraph (C) of this rule, wells completed in confined aquifers shall meet one of the following:

(1) Aquifers confined by an unconsolidated confining layer shall have the casing extend through the confining layer to the top of the aquifer. The annular space contiguous to the confining formation shall be filled with cement grout or bentonite grout by pressure grouting, dry driving, or dry pouring. Filter packs and formation stabilizers shall not extend significantly into a confining formation or allow interconnection of two separate aquifers along the annular space.

(2) Aquifers confined by a consolidated confining layer shall have the casing extend a sufficient depth into the confining layer to retain and maintain the natural ability of the confining layer to protect the confined aquifer from contamination and prevent the loss of hydraulic head. The annular space contiguous to the confining formation shall be filled with cement grout or bentonite grout by pressure grouting, dry driving, or dry pouring. An under reaming tool shall not be used with the dry driven grout method.

(G) Except for very soft, friable or weathered shales or sandstones, where consolidated formations are encountered within twenty-five feet of the ground surface, an oversized borehole shall be drilled and the annular space shall be filled with cement grout or bentonite grout.

(H) Liner pipe may be installed, or shall be installed if the consolidated formation is determined to be prone to collapse, incompetent, or weathered, within and below permanent primary and secondary casing and must meet the requirements of paragraph (B) of rule 3701-28-09 of the Administrative Code and the following requirements:

(1) The top of the liner pipe must terminate no deeper than twenty-one feet or above the static water level, whichever is less, but no less than five feet below the ground surface, must have a threaded connection to facilitate removal of the liner, and must be able to be removed from the well to allow for well cleaning, inspection and maintenance.

(2) Liner pipe with slots, drill holes or other perforations may only be installed adjacent to consolidated geologic formations to help prevent borehole collapse or protect the pumping equipment. Liner pipe with slots, drill holes or other perforations may not be used as well screens in unconsolidated geologic formation.

(I) All annular spaces shall be grouted in accordance with the following requirements:

(1) Except as otherwise provided in paragraphs (D) and (M) of this rule, the annular space in all wells shall be filled with grout from the bottom of the annular space or top of the filter pack or formation stabilizer upward to the ground surface. The annular space must be uniform and borehole stability must be maintained to ensure relatively even placement of the grout seal.

(2) Except for flowing artesian conditions, all drilling fluids shall be flushed from the annular space prior to grouting.

(3) Except as otherwise provided in paragraph (D) of this rule and where multiple screens are present in the well, grout shall extend continuously along the length of the permanent primary or secondary casing.

(4) The annular space between a permanent casing and temporary casing shall be filled with grout during temporary casing removal.

(5) If the primary casing is not driven and the drilling method requires the drilling of an oversized borehole:

(a) The total annular space shall be a minimum of 1.5 inches per side for wells less than or equal to fourteen inches in diameter as measured from the outside of the casing, or a minimum of one inch per side if measured from the outside of the casing coupling,

(b) A minimum of two inches per side for wells greater than fourteen inches in diameter, and a minimum of one inch per side from the outside diameter of secondary casing.

(c) For wells exceeding twenty inches in diameter, the annular space shall be no greater than six inches per side or twelve inches total for wells less than or equal to thirty feet in depth, and shall be no greater than four inches per side or eight inches total for wells greater than thirty feet in depth.

(d) For purposes of this rule, the annular space is the distance between the side of the borehole excavation and the outside of the casing or joint coupling or the outside diameter of the casing where no coupling is used.

(6) Except for the dry driven grout method, the total volume of sealing materials used must not be less than eighty per cent of the total volume of the annular space. If settling of the grout occurs, then additional grout shall be placed into the remaining void space.

(7) Small diameter casing extensions for large diameter wells using fiberglass casing with a buried seal shall not be required to be grouted along the length of the smaller diameter casing. Grout shall be placed from six inches above to six inches below the joint between the smaller and larger diameter casing-. The annular space adjacent to the small diameter casing shall be filled with clean clay.

(8) Where the annular space in a borehole is consistently dry, consideration must be given to the appropriate type of grout materials used.

(J) Pressure grouting using bentonite or cement grout slurries approved for use under rule 3701-28-09 of the Administrative Code shall be placed into the annular space in accordance with the following requirements:

(1) When grouting with the same materials, the grout shall be placed in the annular space in a continuous operation without interruption until the cement or bentonite grout of approximately the same density as the grout being placed into the borehole is coming out of the annular space.

(2) When a tremie or conductor pipe is used in pressure grouting operations it shall be of sufficient diameter, strength and pressure rating to transport the density of grout being pumped to the depth needed to ensure complete grouting of the annular space, and minimize damage to the borehole walls and casing. For wells with grouting placed less than one-hundred feet in depth, the tremie pipe may be left in place during the grouting process and after grouting has been completed, provided the tremie pipe is also filled with grout. Except when grouting flowing wells, for wells with grouting placed greater than one-hundred feet in depth, the tremie pipe shall be raised with each successive batch of grout placement with the tremie pipe kept submerged a minimum of ten feet beneath the grouting surface in the annular space at all times.

(3) Except when a gravel pack is to be placed next to a well screen, a minimum of two shale traps shall be installed prior to installation of the casing and pressure grouting for installation of casing up to two hundred feet in depth. One additional shale trap shall be installed for each additional one hundred feet,

or part thereof, of casing installed.

(a) The shale traps shall be placed such that the bottom of the first shale trap is no more than twelve inches from the bottom of the casing and that the bottom of the subsequent shale traps are no more than twelve inches above the shale trap below it.

(b) Shale traps may be filled with granular or coarse grade bentonite prior to placement in the borehole.

(c) Alternatively, casing may be placed directly into a two-inch annular space per side without a shale trap if the casing is resting on a consolidated formation ledge, and a minimum of ten feet of coarse grade bentonite is placed using the dry pouring method of placement described in paragraph (H) of rule 3701-28-09 of the Administrative Code from the bottom of the casing upward in the borehole, with any approved grouting method used to fill the remainder of the annular space.

(4) Acid soluble cellulose fiber or other similar additives approved by the department may be added to the grout slurry to minimize fluid loss in the borehole.

(K) The conductor pipe gravity method may be used for cement grouts in accordance with the following requirements:

(1) Cement grout may be placed into the annular space of a well using the conductor pipe gravity method where the annular space is greater than or equal to two inches per side, no greater than one hundred feet in depth, and where there is a minimal amount of water in the borehole. For purposes of this rule, the "conductor pipe gravity" method means allowing cement to flow by gravity through a funnel or hopper connected to a conductor pipe.

(2) The conductor pipe shall be lowered to the bottom of the annular space to be grouted and the grout placed from the bottom up with the conductor pipe submerged at all times.

(L) Dry pouring of bentonite into the annular space shall be used in accordance with the following requirements:

(1) Dry pouring of coarse grade or pelletized bentonite grout must be placed using the pouring and screening methods described in paragraph (H) of rule 3701-28-09 of the Administrative Code.

(2) Bentonite shall only be dry poured into an annular space that is greater than or equal to two inches per side as measured from the outside of the casing or joint coupling or the outside diameter of the casing where no coupling is used.

(3) Coarse grade bentonite may be poured into an annular space, no greater than two-hundred feet in depth.

(4) Coarse grade bentonite shall be dry poured into the annular space between a permanent casing and temporary casing during temporary casing removal.

(5) Granular and pelletized bentonite shall not be dry poured greater than twenty-five feet in depth in a dry annular space.

(6) Coarse grade, pelletized or granular bentonite shall not be poured through drilling fluids in the annular space.

(M) The dry driven grout method shall be used for grouting the annular space in accordance with the following

requirements where the well is constructed using a cable tool, driven casing hammer or any other method where permanent steel casing is driven:

(1) Where temporary outer casing or an oversized borehole is not used, a collar flared joint or weld bead shall extend beyond the outside diameter of the permanent casing and dry granular bentonite shall be poured around the permanent casing as it is being driven.

(2) A drive shoe shall be connected to the lower end of the casing to be driven.

(3) A starter hole that is larger in diameter than the driven casing must be constructed to a depth no greater than five feet before casing is set in place for driving. If the enlarged borehole extends beyond five feet, than a two inch annular space is required.

(4) Granular bentonite shall be mounded above or below grade around the exterior of the casing as it is driven. Grout around the annular space must be kept dry as the casing is being driven.

(N) Except in naturally developed wells, filter packs or formation stabilizers used in wells completed in unconsolidated or incompetent formations shall meet the requirements of paragraph (L) of rule 3701-28-09 of the Administrative Code and be placed in accordance with the following specifications:

(1) Filter pack or formation stabilizer material shall be placed adjacent to the well screen and extend a sufficient distance to prevent grout from being drawn into the screen by the pump. Filter pack or formation stabilizer shall not be placed in a manner which will interconnect zones of significantly different hydraulic conductivity. Filter pack or formation stabilizer shall not extend to less than ten feet from the natural ground surface.

(2) For wells exceeding twenty inches in diameter, the filter pack or formation stabilizer shall be no greater than six inches per side or twelve inches total for wells less than or equal to thirty feet in depth, and shall be no greater than four inches per side or eight inches total for wells greater than thirty feet in depth to facilitate proper well development.

(3) Filter packs and formation stabilizers shall not be placed inside of casing or liner pipe.

(4) Except for flowing well conditions described in paragraph (P) of this rule, all drilling fluids shall be flushed from the annular space prior to placement of the filter pack or formation stabilizer.

(O) Well screens that meet the specifications described in paragraph (K) of rule 3701-28-09 of the Administrative Code shall be installed in wells completed in unconsolidated or incompetent formations, unless geologic formation conditions prevent their use. Screens shall be attached either directly to the bottom of the casing, or if installed using telescoping methods to a K-packer that meets the specification described in paragraph (L) of rule 3701-28-09 of the Administrative Code. Shale traps shall not be used in place of a K-packer. Well screens shall not be installed less than ten feet from the natural ground surface nor shall they be driven.

(P) Wells completed in aquifers constructed using drilling methods except for cable tool drilling, with hydrostatic heads greater than the land surface elevation shall have casing and grout installed to protect the aquifer, prevent erosion of the overlying geologic materials, and prevent flow in the annular space, and shall be constructed according to the following procedures, as applicable:

(1) If the anticipated flow at the ground surface is not excessive, after the borehole is drilled, and the casing set, the water in the casing may be pumped to lower the water level in the casing and the annular space. The annular space shall then be filled with cement grout by pressure grouting. However, the density of the cement grout may be greater than that required under paragraph (F) of rule 3701-28-09 of the Administrative Code to control flow in the annular space.

(2) If the water flow at the ground surface is designated by the department, the Ohio department of natural resources division of geological survey, or otherwise known to the contractor to exceed five gallons per minute or where conditions exist where a loss of borehole control may occur at the time the permit is issued, an upper enlarged borehole shall be drilled partially into the confining formation, or to a minimum of twenty-five feet, whichever is necessary. The upper enlarged borehole shall be at least four inches in diameter larger than the nominal diameter of the outer well casing. The annular space between the upper enlarged borehole and outer well casing shall be filled with cement grout by pressure grouting. The outer casing shall be left as permanent casing once the well is completed.

(a) If the confined aquifer is consolidated, a smaller diameter borehole shall be drilled through the upper enlarged borehole, the well shall be double cased, the inner casing shall be firmly seated into the bedrock, and the remaining annular space shall be filled with cement grout by pressure grouting. However, the density of the cement grout may be greater than that required under paragraph (F) of rule 3701-28-09 of the Administrative Code to control flow in the annular space.

(b) If the confined aquifer is unconsolidated, a smaller diameter borehole shall be drilled through the upper enlarged borehole, with casing and a screen installed into the confined aquifer. The well shall be double cased, and the remaining annular space filled with cement grout by pressure grouting. However, the density of the cement grout may be greater than that required under paragraph (F) of rule 3701-17-09 of the Administrative Code to control flow in the annular space.

(3) Flowing wells shall be completed at the surface to ensure water does not flow from under the well cap.

(4) Flowing well discharge control shall be provided to conserve ground water and to prevent the loss of artesian head by preventing or reducing continuous discharges. Flow control shall consist of one of the following methods;

(a) The extension of the well casing to an altitude corresponding to that of the artesian head.

(b) Installation of a vermin proof cap, well pitless adapter or wire spud, or to a discharge point that complies with paragraph (P)(5) of this rule.

(c) Installation of flowing well or spool type pitless unit, when installed within the manufacturer's specification for rated pressure.

(d) Other methods as approved by the department.

(5) After all uses for the private water systems owner are met, flowing wells may discharge up to ten gallons per minute when the private water system's owner demonstrates that a suitable discharge point exists on the owner's property, that the flow control discharge line can be adequately protected from any possible cross connection, and when one of the following conditions exist:

(a) Control of the flow is not practical due to excessive hydrostatic pressure.

(b) Control of the flow will likely result in the production of sand or turbidity in the water.

(c) The discharge will not adversely affect surrounding users of ground water or impact surface water drainage.

(d) The discharge line from the well shall either be protected by an air gap with an animal guard or a backflow prevention device.

(Q) Wells completed in cavernous, highly fractured formations, or mine shafts shall be constructed according to the following, as applicable:

(1) Any cavernous, highly fractured formations or mine shafts that are not being used as a source of water shall have casing installed through the cavernous, highly fractured formations or mine shafts and comply with the following, as applicable:

(a) If cavernous, highly fractured formations or mine shafts are greater than twenty-five feet from the ground surface, then one of the following methods of construction shall be used:

(i) The formation or shaft shall be filled with cuttings, clean gravel or grout, or packers or shale baskets shall be installed at the top and bottom of the formation or shaft and the fracture or void is not filled with grout material. The annular space above and below the void or fracture shall then be filled with cement grout or bentonite grout.

(ii) A primary casing shall be set to the top of the void and grouted in place. A secondary casing may be set inside the primary casing and the secondary casing extended through the void into the borehole below the void and grouted in place.

(b) If cavernous, highly fractured formations or mine shafts are less than twenty-five feet from the ground surface, casing shall be installed in an enlarged borehole and the annular space shall be filled with a cement grout containing additives that promote bridging of the cavernous, highly fractured formations or mine shafts by pressure grouting or by dry pouring coarse grade or pelletized bentonite to a depth of at least five feet beyond the cavernous, fractured formation or mine shaft.

(2) If the cavernous, highly fractured formation or mine shaft is to be used as the source of water supply, then a packer or shale trap or cement basket shall be installed at the top of the formation or shaft and the annular space shall be filled with cement grout or bentonite grout by pressure grouting or dry pouring of coarse grade bentonite.

(R) Wells completed in geologic formations that produce saline water at a concentration exceeding three thousand milligrams per liter shall be constructed according to the following procedures:

(1) Any saline producing formations that are encountered during drilling shall have casing installed through the saline producing formation and the annular space contiguous to the saline producing formation shall be filled with cement grout by pressure grouting or the well shall be sealed to an elevation higher than the top of the saline producing formation. Grouts that are not adversely affected by the saline water shall be used for sealing the well or annular space.

(2) Upon identification of the occurrence of a saline producing well by the board of health or the department,

actions to mitigate the production of saline water in the well must be initiated within ninety days.

(3) If the saline producing formation cannot be successfully isolated from the water source, then the entire well shall be sealed in accordance with rule 3701-28-17 of the Administrative Code or the system owner shall apply for a variance for continued use of the water. In no case shall a variance allow the well producing saline water to mix with another aquifer producing fresh water and contaminate the aquifer or another private water system.

(S) Wells that produce dissolved methane gas greater than or equal to ten milligrams per liter, or methane production in the borehole shall be vented to the atmosphere to prevent explosive conditions and minimize human exposure using one of the following methods:

(1) Venting the well through the use of vented well cap where the vent diameter is no less than one inch in diameter, and the vent opening is screened in accordance with paragraph (U)(5) of this rule and extended to a height to prevent combustion from normal activities around the home.

(2) Use of a vented tank equipped with a spray bar or nozzle to disperse the water, a vent pipe with screen and flap valve to allow escape of the gas to the atmosphere to an elevation greater than the roof of the house, or vented discharge no less than ten feet from the foundation using a smaller diameter screened and downturned pipe to promote air flow, and a check valve after the tank and prior to an additional pump to pressurize the distribution system. Manufactured venting systems shall be installed in accordance with the manufacturer’s requirements.

(3) Wells located in basements, well houses, offsets or other structures shall be vented to the outside of the structure with a minimum three inch vent pipe extending ten feet from the foundation of the house, installed no less than eighteen inches from the ground surface, and the end of the vent pipe downturned and properly screened to prevent the entrance of insects and animals.

(4) Other methods of methane gas venting as approved by the department.

(T) Except when a hand pump has been installed in accordance with paragraph (P) of rule 3701-28-08 of the Administrative Code, all wells shall be equipped with a pitless adapter or pitless unit that meets the current water systems council pitless adapter standard and provides for the prevention of the entrance of surface water, dirt, animals, insects, or other foreign matter. The department shall approve all pitless adapters and pitless units and installation procedures for use in above and below ground installations if the department determines that the pitless adapter or pitless unit and installation procedures adequately prevent the entrance of surface water, dirt, animals, insects, or other foreign matter.

(1) Pitless units that connect to a well casing must extend at least twelve inches above the ground surface and be connected to the casing through one of the following methods:

(a) A threaded connection;

(b) A welded or solvent cemented connection;

(c) Bolted flanges with rubber gaskets;

(d) Extension of the casing at least one inch into the base of a power pump mounted on and sealed to a concrete pedestal; or

(e) When the steel well casing pipe is not terminated at the desired depth for the installation of an approved pitless unit, the well casing pipe shall be cut off at the desired height, and the pitless unit may be welded or threaded and coupled to the top of the well casing pipe in accordance with the manufacturer's requirements.

(f) The inside diameter of the pitless unit shall not be smaller than the inside diameter of the casing.

(2) Pitless adapters that connect to a well casing must be installed below the local frost line and be connected to the casing using one of the following methods:

(a) Approved pitless adapters shall be connected by welding, bolting or clamping as required by the type and the manufacturer. Any hole constructed into the side of the casing for access by the pitless adapter shall be of the size and dimension as required by the manufacturer, and shall be made using a hole saw or a cutting torch. The use of a cutting guide is required.

(b) No part of a pitless adapter may extend into the inside diameter of a well casing so that setting or removal of the pump, pump piping or drop pipe, or the use of tools for well rehabilitation or disinfection is impeded for wells greater than or equal to a nominal pipe size of five inches. All parts of the pitless adapter within the interior of the casing shall be removable through the top of the well casing and shall provide complete clearance within the internal diameter of the well casing for wells equal to or less than four inches in diameter.

(c) Upon installation of the pitless adapter, the excavation surrounding the casing and pitless adapter shall be backfilled with clean clay or native soils. Voids present below the pitless adapter shall be filled with bentonite grout.

(3) Pitless adapter or pitless unit connections to thermoplastic pipe shall meet the following requirements:

(a) Steel well casing pipe extensions, pitless units or pitless adapters shall not be welded after they are attached to thermoplastic well casing. The thermoplastic coupling shall be threaded onto the pitless unit before it is solvent cemented to the top of the casing.

(b) Threaded connections or flanges shall only be used on pitless units or pitless adapters after attachment to the well casing pipe.

(c) Where approved pitless adapters are installed by clamping on thermoplastic casing they shall be installed as per the manufacturer's specifications with deep pump installations of one hundred feet or more and low static water levels, a backing plate, wide steel strap or casting shall be installed to protect the integrity of the thermoplastic casing at the point of the pitless adapter connection.

(4) Except as provided in paragraph (S) of this rule and paragraphs (E) and (G) of rule 3701-28-02 of the Administrative Code the well casing height above finished grade shall be a minimum of twelve inches.

(5) The top of the casing at its finished height shall be cut so that the surface will fit flush with the well cap and provide a tight seal.

(U) All well caps and seals shall meet the current water systems council well cap standard and meet the following requirements:

(1) All well caps and seals shall fit securely to the top of the well casing to provide a weather tight seal to prevent the entrance of insects, be secured with screws or other appropriate connections, and vented to the atmosphere.

(2) Electrical conduit connections on well caps or seals shall be threaded and the space between the wire and conduit must be sealed to prevent the entrance of insects and water.

(3) Wells where the pitless adapter or distribution lines have not been installed shall have an approved cap placed on the well at all times.

(4) Except for venting in a floodplain or methane gas control, holes for any purpose shall not be installed in a well cap.

(5) Except for drive point wells, the installation of vents shall comply with the following requirements:

(a) A casing vent shall be provided on all well caps and seals except for those used on deep well single pipe packer jet installations or on flowing wells where the flow rate is greater than the pumping rate of the permanent pump.

(b) A vent shall be self-draining, screened with a non-corroding mesh screen of adequate dimensions to prevent the entrance of insects, pointed downward, and terminate not less than twelve inches above the ground surface or above the floor of a basement, basement offset, pump room, or at a point not less than three feet above the elevation of a one-hundred year flood plain. The vent shall provide for adequate air flow.

(c) For casing with inside diameters equal to or less than six inches, the total vent surface area shall be no less than three quarters of an inch in diameter. For casing with inside diameters greater than six inches. The total vent surface area shall be no less than one inch in diameter.

(6) Wells located in a one-hundred year flood plain shall have watertight caps with either the casing extending a minimum of three feet above the one-hundred year flood elevation or the vent, or shall be equipped with self-sealing type vents that seal upon inundation by water.

(V) The maintenance and modification of wells shall comply with the following:

(1) Casings and tops of wells shall be protected against contamination at all times.

(2) If a casing deteriorates to such an extent that contamination may occur and the well cannot be repaired, new casing that meets the requirements of paragraph (B) of this rule shall be installed, or the well shall be sealed in accordance with rule 3701-28-17 of the Administrative Code.

(3) If any part of the pump-, distribution system or any connection malfunctions or becomes defective in such a fashion that contamination may occur, the pump or connection or part of the distribution system shall be promptly repaired or replaced as necessary to prevent contamination.

(4) A well shall be disinfected in accordance with rule 3701-28-11 of the Administrative Code after maintenance or repair of the well.

3701-28-11 Development, startup, and operation of new, repaired and altered wells.

(A) For purposes of this rule:

(1) "Drawdown" means the extent to which the water level in and near a well is lowered when water is pumped or flows from the well.

(2) "Pump test" means to withdraw water from a well at a constant or stepped rate while measuring the drawdown in the well at specific time intervals for a specific period of time.

(3) "Sustainable yield" means the volume of water that can be consistently discharged from well over a period of time.

(B) Wells shall be properly developed, by the private water systems contractor, upon completion or whenever an alteration or a repair requires development until turbidity and the production of sand and finer material in the well is minimized.

(1) Mechanical development shall be performed so as not to cause damage to the components of the well. Mechanical development techniques include: mechanical surging; air surging or air lifting; overpumping and backwashing; high velocity jetting; bailing; and hydrofracturing. Any mechanical development method that utilizes a chemical reaction must meet NSF 61-2016.

(2) Chemical development procedures may be used in conjunction with mechanical procedures in accordance with the following requirements:

(a) Chemical development procedures used on a well, except chlorination, shall be performed by a registered contractor.

(b) Any chemicals used for well development or rehabilitation shall meet NSF 60-2016 and shall be used in accordance with the manufacturers recommendations and in a manner to prevent damage to the well or pump and prevent any hazard to humans or property. Any acid used shall be inhibited and neutralized upon removal from the well.

(c) Dispersing agents shall be used only when necessary to disaggregate clay particles to enhance removal. Chlorine shall be added to the mix water to prevent bacterial growth. Dispersing agents shall be immediately flushed from the well and aquifer to prevent bacterial growth in the aquifer.

(C) Upon completion of development of the well, the static water level shall be measured and recorded, and a pumping test shall be conducted to determine the sustainable yield of the well in gallons per minute, or gallons per hour, and the water level drawdown to ensure adequate capacity for the estimated average daily demand of the well. The registered contractor may use the contractor's pump or the well owner’s pump, a bailer, air blowing or air lifting to determine the accurate yield of the well. The pump test should be conducted for a period of time sufficient to determine the sustainable yield. For flowing wells, the flow rate may be measured using an orifice plate with manometer or equivalent. Water discharged from a pumping test shall not be discharged into or onto household sewage treatment systems.

(D) Materials used in disinfecting private water systems shall meet the following requirements:

(1) Be sodium hypochlorite at a strength of five per cent or greater. Sodium hypochlorite solutions shall be

used within the manufacturer's posted expiration date. Sodium hypochlorite solutions with fragrance additives shall not be used for disinfection of private water systems.

(2) Be calcium hypochlorite products designed for use as a private water systems disinfectant. The product shall be prepared and placed in the well using the manufacturer's requirements. Calcium hypochlorite products should not be used to disinfect wells completed in limestone or dolomite aquifers, or where the water in the well has high levels of dissolved calcium unless recommended by the manufacturer or the department.

(3) Sodium hypochlorite and calcium hypochlorite shall not be mixed with other chemicals that may cause an adverse reaction for disinfection purposes and all manufacturer's directions must be followed.

(4) Be distilled white vinegar.

(5) With the exception of sodium hypochlorite and distilled white vinegar, any product used in the disinfection of a private water system must comply with NSF 60-2016 and be designated by the manufacturer for use as a well disinfectant and/or cleaning agent.

(6) Other products authorized by the department.

(E) All new, repaired, or altered wells shall be disinfected with products authorized under paragraph (D) of this rule to neutralize contamination after construction, development, installation, alteration, or repair, prior to water being removed for human consumption.

(1) The registered private water systems contractor performing the construction, development, installation, alteration, or the person performing the repair shall disinfect the private water system according to this rule at the time of completion of the portion of work performed by that person.

(2) The owner of the private water system shall provide access to the system to ensure that the entire private water system, including the plumbing and all related fixtures, are disinfected in accordance with this rule, prior to placing that private water system into service.

(F) Procedures for disinfection shall include the following:

(1) For new system construction, the well shall be developed and all loose debris and material purged from the well and the distribution system.

(2) For system alterations, the private water systems contractor shall assess the need for physical or chemical cleaning of the well and distribution system, and implement such processes as needed to ensure proper disinfection of the system.

(3) The gallons of water to be disinfected shall be determined by calculating the total capacity of the private water system including water stored in a well casing, pressure tanks, existing plumbing and attached fixtures, and all related storage.

(4) Authorized disinfectants shall be used in accordance with the manufacturer’s requirements. When sodium or calcium hypochlorite is used, an initial disinfection solution between one hundred and five hundred milligrams per liter shall be used, and control of pH is recommended as determined by field testing

methods.

(5) Disinfectants shall be distributed throughout the well and distribution system, including the borehole and washing the sides of the casing, and if necessary to ensure complete disinfection, into the aquifer.

(6) Disinfectants shall remain in the system an adequate amount of time to ensure proper disinfection or in accordance with the manufacturer's recommendations. Where required, control of the pH of the water shall be implemented to ensure proper disinfection. When sodium and calcium hypochlorite is used as a disinfectant without pH control, the contact time shall be a minimum of eight hours.

(7) Upon completion of the disinfection process, all disinfectants shall be purged from the well and the distribution system. Discharge of purged disinfectants into sewage treatment systems must be minimized.

(G) If a water sample result obtained from a sample collected at the point of discharge of the private water system exceeds the bacterial standards in paragraph (N) of rule 3701-28-04 of the Administrative Code, the private water systems contractor and the owner of the private water system shall ensure that the entire private water system is disinfected, in accordance with disinfection requirements stated in paragraphs (E) and (F) of this rule, prior to placing that private water system into service.

(H) When two consecutive samples exceed the maximum contaminant levels specified in paragraph (N) of rule 3701-28-04 of the Administrative Code for coliform CFU or MPN, escherichia coli, or primary pathogenic microorganisms, or the presence of opportunistic bacteria of concern are identified from water samples collected at the point of discharge of the private water system, the following enhanced disinfection procedures shall be used by the private water system contractor or contractors in a phased approach prior to the board of health or the director initiating an investigation into to the compliance of well construction:

(1) The system shall be evaluated by the registered private water systems contractor to determine any necessary corrections or repairs to the system~~;~~. Necessary corrections or repairs should be made to the system prior to additional enhanced disinfection steps being performed;

(2) The casing and borehole walls shall be physically or chemically cleaned;

(3) All debris, loose materials and biological slimes shall be removed from the well;

(4) The well shall be disinfected by the registered private water systems contractor using an an approved disinfectant solution, in accordance with paragraphs (E) and (F) of this rule;

(5) The introduction of a volume of the chlorine disinfectant solution, as described in paragraph (E) of this rule, that is two or three times the total volume of water stored in the casing into the well to displace chlorinated water into the aquifer; or

(6) The private water systems contractor or contractors shall document all corrective work or disinfection procedures implemented and submit a completion form to the board of health describing any corrections or repairs made to the system and the specific enhanced disinfection procedures utilized.

(I) Except when a board of health investigation has determined that a private water well has been constructed in compliance with this chapter, continuous disinfection shall not be installed on any new or existing private

water system well that is not otherwise required by this chapter.

(J) All water samples shall be collected and processed in accordance with rule 3701-28-04 of the Administrative Code.

3701-28-12 Construction and surface design of cisterns, reservoir tanks, hauled water storage tanks, and roof washers.

(A) Cisterns, reservoir tanks, and hauled water storage tanks shall be watertight with a reasonably smooth, clean interior surface. All concrete tanks shall be made of materials and constructed in accordance with ASTM specifications C 913-2016. All plastic or fiberglass tank materials shall meet NSF standard 61-2016. All joints, connections, and other seams between component parts shall be sealed with nontoxic waterproof material that meets NSF standard 61-2016 or equivalent to prevent the loss of stored water and the infiltration of surface or ground water.

(B) Cisterns, reservoir tanks, and hauled water storage tanks shall be easily accessible for cleaning. Partitions, baffles, or similar structural features shall be constructed of nonabsorbent, easily cleanable materials, free of spalls, cracks, or crevices which may entrap unwanted matter.

(C) The capacity of cisterns and hauled water storage tanks shall be adequate to meet the intended needs of the household. No new cistern of less than two thousand five hundred gallons capacity per dwelling unit shall be installed. No new hauled water storage tank of less than one thousand gallons capacity per dwelling unit shall be installed, except if the tank is a supplemental water reservoir tanks for wells, ponds, and springs designed to receive hauled water as an additional water source.

(D) Inlets to cisterns and hauled water storage tanks shall be of sufficient size and design to dissipate the pressure of the influent stream and minimize the stirring of any settled solids.

(E) Cisterns, reservoir tanks, and hauled water storage tanks shall be set level and at an adequate depth or location to prevent frost heave. The bottom of the excavation shall be continuous, relatively smooth, and free of rocks. The bottom of the excavation shall have a minimum of four inches of material approved by the manufacturer of the tank. Tanks shall not bear on rock ledges. Backfill shall be free of any large stones or debris, and shall be placed in a manner consistent with tank manufacturer recommendations. Earth cover shall be graded to prevent water from standing over the cistern or hauled water storage tank.

(F) Manholes or risers shall be sealed to the top of the cistern or hauled water storage tank:

(1) Concrete tanks shall have an opening of a minimum diameter of twenty-four inches and shall be constructed of the same or compatible material as the cistern or hauled water storage tank.

(2) Plastic tanks shall have an opening of a minimum diameter of eighteen inches.

(3) The manhole opening shall have a watertight cover with edges projecting a minimum of eight inches above the level of the surrounding surface. The edges of the manhole or riser cover shall overlap the curb and project downward a minimum of two inches. The covers shall be secured to minimize the danger of contamination, accidents, and unwarranted entry.

(4) A concrete patio or wood deck may be located over a cistern or hauled water storage tank provided that proper access is maintained for filling, service and inspections.

(G) A cistern shall be equipped with outlet drain or overflow pipe. Outlet drains and overflow pipes are optional on hauled water storage tanks. Cistern and hauled water storage tank outlet drains and overflow pipes shall be a minimum of four inches in diameter and not be connected to any sewer, soil pipe, building drain, or other waste pipe. Outlet drains and overflow pipes shall be equipped with noncorroding animal guards with a maximum opening of 0.43 inches. Such drains are to discharge at a point free from flooding through an

atmospheric break to prevent backflow.

(H) Vents are optional on cisterns and hauled water storage tanks with inlets and outlets that are open to the air. Vents being utilized on a cistern or hauled water storage tank shall be inverted, and the vents and other openings shall be constructed and protected with noncorroding animal guards with a maximum opening of 0.43 inches, so as to prevent the entrance of animals, insects, or other contaminating material.

(I) Fittings and couplings which extend through the walls or the cover of cisterns and hauled water storage tanks shall all be cast in place, by the manufacturer. Couplings shall be made of cast brass, fiberglass, galvanized cast iron, flexible pipe to manhole connectors conforming to ASTM C-923 2013, or shall be two piece friction clamps or longitudinally ribbed plastic so as to prevent turning in place and the entry of contamination or loss of stored water.

(J) A minimum of one above-ground roof washer/diverter and debris filtering device or a combination type of device shall be provided on each cistern and for each one thousand five hundred square feet of roof area. All roof areas being utilized for rainwater capture shall be protected by a roof washer. All newly installed roof washers shall be of a design that will automatically divert the first ten gallons of rainfall runoff from the roof away from the cistern.

(1) For the purposes of this rule "roof washer" means any manual or automatic diverter or other device that is designed to prevent the initial ten gallons of roof rainfall from entering a cistern.

(2) For the purposes of this rule "debris trap" means a screened device or filter that removes larger debris such as leaves and twigs after the water has discharged from the gutter and prior to entering a cistern.

(3) For the purposes of this rule "combination device" means a device that functions as both a roof washer for the first ten gallons and as a debris filter.

(4) For the purposes of this rule "gutter guard" means any device installed on the gutters designed to help exclude leaves and twigs from entering the gutter.

(5) The above-ground roof washer combination device or filtering device shall be provided with an above grade and easily removable debris trap with a minimum screen opening of one quarter inch. The debris trap shall be installed prior to the filtering device and designed to catch or entrap the larger debris before it enters the filter or cistern tank. The top of the roof washer combination device or filtering device shall extend above the ground a minimum of eight inches and have outlets of a minimum of four inches. All collected rainwater shall pass through the roof washer combination device or filtering device and the debris trap or combination device prior to entering the cistern.

(6) The debris filter or combination device shall have a capacity of at least ten gallons for every fifteen hundred square feet of roof area. Each debris filter or combination roof washer/filter device shall have either several inches of one half inch to three-quarter inches of washed gravel or an equivalent filtering media or filtering component capable of removing larger particles.

(K) Cistern and hauled water storage tank inlet and fill pipes shall be a minimum diameter of four inches, except where the inlet is from a well being used as a combination water source with the cistern. Inlets shall be protected against contamination at all times. The fill pipe shall be equipped with a secured and watertight cap or cover and extend above the ground a minimum of eight inches. If an inlet enters the cistern from a well being used as a combination water source, the inlet from the well shall be protected by an air gap that is two times the diameter of the inlet pipe above the cistern overflow level.

(L) The water intake for the pump in the cistern and hauled water storage tank closest to entering the building shall at no time be located less than four inches from the bottom of the cistern or hauled water storage tank. If multiple tanks are used for the cistern or hauled water storage tank systems then this rule applies to the intake for the tank closest to entering the building. The water intake for the pump in the cistern and hauled water storage tank shall be one of the following:

(1) Be attached to a flotation device and be located a minimum of four inches below the surface of the water;

(2) Cast in place and shall be otherwise designed to maintain the required depth settings in the water;

(3) A submersible pump located within the tank, not required to be attached to a flotation device; or

(4) A submersible pump located in a plastic casing next to the tank, connected to the tank using a pitless adapter.

(M) Water obtained from cisterns shall be continuously disinfected and filtered as prescribed in rule 3701-28-15 of the Administrative Code. Hauled water storage tanks that receive hauled water from a public supply as their only water source are not required to be provided with continuous disinfection.

(N) All new, repaired, or altered cisterns and hauled water storage tanks shall be disinfected with chlorine or disinfection products authorized by the department to neutralize contamination after construction, installation, alteration, or repair, prior to water being removed for human consumption.

(1) The registered private water systems contractor performing the construction, installation, alteration, or the person performing the repair shall disinfect the private water system according to this rule at the time of completion of the portion of work performed by that person.

(2) The owner of the private water system shall provide access to the system to ensure that the entire private water system, including the plumbing and all related fixtures are disinfected in accordance with this rule, prior to placing that private water system into service.

(3) For initial and periodic disinfection of cisterns and hauled water storage tanks, all loose debris, sediment, mineral encrustation and bacterial slime shall be removed from the cistern or hauled water storage tank prior to disinfection, and either of the following procedures implemented:

(a) A solution of fifty milligrams per liter of chlorine shall be prepared in a storage container. The quantity of solution prepared shall be of sufficient volume to disinfect the entire cistern, hauled water storage tank, and all related storage, or pressure tanks, existing plumbing and attached fixtures; or

(b) A solution of two hundred fifty milligrams per liter of chlorine shall be prepared in a storage container and thoroughly sprayed on all surfaces of the tank for a period of fifteen minutes. A second solution of fifty milligrams per liter of chlorine shall then be circulated through the water supply system and distribution lines.

(O) All rainwater cistern and hauled water storage tank that are no longer being used as a primary water source as a private water system shall be decommissioned in accordance with rule 3701-28-17 of the Administrative Code.

3701-28-13 Construction and surface design of springs.

(A) Water obtained from a spring construction shall be continuously disinfected and filtered as prescribed in rule 3701-28-15 of the Administrative Code.

(B) The location of the spring shall be at a point free from flooding and, in addition to the requirements of rule 3701-28-07 of the Administrative Code, shall comply with the following:

(1) The area surrounding the spring to a distance of fifty feet downslope and two hundred feet upslope or to the crest of the slope shall be under the control of the private water system owner through ownership of the land or an easement and shall not be used for any activity that may contaminate the spring.

(2) The spring outlet shall not be located in a one-hundred year flood plain.

(C) A diversion ditch shall be located on the uphill side of the spring to divert surface water away from the spring construction. The discharge from the diversion ditch shall be a minimum of twenty-five feet and downslope from the spring.

(D) The spring box shall be built with substantial and watertight walls of concrete. All concrete tanks shall be made of materials and constructed in accordance with ASTM specification C 913-2016. All plastic or fiberglass tank materials shall meet NSF standard 61-2016 or approved by the department. All joints, connections, and other seams between component parts shall be sealed with nontoxic waterproof material that meets NSF standard 61-2016 or approved by the department.

(E) The spring box shall be provided with a watertight, secured cover. Manholes, if provided, shall be a minimum of twenty-four inches in diameter for concrete tanks and eighteen inches for plastic tanks. Manhole covers shall have a watertight curb with edges projecting a minimum of eight inches above the level of the surrounding surface. The edges of the manhole cover shall overlap the curb and extend downward a minimum of two inches. The spring box cover or manhole cover shall be provided with locks, bolts, or equivalent means to minimize the danger of contamination, accidents, and unwarranted entry.

(F) A gravity drain or powered sump system shall be provided for the purpose of cleaning the spring box. The drain system shall be protected from freezing and be screened to prevent the entrance of insects, rodents and aquatic life.

(G) The spring box shall be provided with a screened overflow pipe located slightly below the maximum water level elevation. The overflow pipe and any other openings shall be constructed and protected with noncorroding fly screen or guards with a maximum opening of one quarter of an inch, so as to prevent the entrance of animals, insects, or other contaminating material.

(H) The inlet pipe to the spring box shall be located higher than the drain outlet and shall be screened.

(I) Pipe used to intercept spring discharges and shallow ground water of ten feet or less below the ground surface shall be made of material suitable for potable water that meets NSF standard 61-2016 or materials approved by the department for potable water.

(J) All joints, connections, and other seams between component parts of the spring construction shall be sealed with nontoxic waterproof material that meets NSF standard 61-2016 or materials approved by the

department to prevent contamination or the entry of unwanted water.

(K) All new, repaired, or altered spring boxes shall be disinfected with chlorine or other disinfection products authorized by the director to reduce contamination after construction, installation, alteration, or repair prior to water being removed for human consumption.

(1) The registered private water systems contractor performing the construction, installation, alteration, or repair shall disinfect the private water system according to this rule at the time of completion of the portion of work performed by that person.

(2) The owner of the private water system shall provide access to the system to ensure that the entire private water system, including the plumbing and all related fixtures are disinfected in accordance with this rule prior to placing that private water system into service.

(3) The following start up disinfection procedures apply to spring boxes:

(a) All loose debris, sediment, mineral encrustation and bacterial slime shall be removed from the spring box prior to disinfection.

(b) A solution of fifty milligrams per liter of chlorine shall be prepared in a storage container. The quantity of solution prepared shall be of sufficient volume to disinfect the entire spring box and all related storage or pressure tanks, existing plumbing and attached fixtures.; or

(c) A solution of two hundred fifty milligrams per liter of chlorine shall be prepared in a storage container and thoroughly sprayed on all surfaces of the tank for a period of fifteen minutes.

(d) This solution shall be used to thoroughly rinse all sides of the water storage tank and/or spring box. The solution shall then be circulated through the water supply system distribution lines.

(L) All springs that are no longer being used as the primary water source as a private water system shall be decommissioned in accordance with paragraph (D)(7) of rule 3701-28-17 of the Administrative Code.

3701-28-14 Location and construction of ponds.

(A) Ponds shall be considered as a source of water for human consumption at the discretion of the board of health, only when available ground water sources are inadequate for the intended use or unacceptable due to the presence of naturally occurring or man-made contaminants that are not economically or technically feasible to treat, and on the ability of the property owner to meet all of the requirements of this rule. A pond shall not be acceptable as a new water supply source when a public water supply is readily accessible to the property, as determined by the board of health. The board of health may choose not to approve an application for a permit utilizing a pond for source water as a private water system if there is incomplete or inconclusive information about the suitability for a pond system at a specific site.

(B) Surface water sources, including, but not limited to, rivers, streams, creeks, lakes, quarries, and drainage ditches shall not be considered for construction as private water systems because there is no control of the water source by the owner of the individual property. The board of health shall not consider a variance to this rule.

(C) The pond and the watershed shall be under the complete control of the pond owner and the watershed shall be located on a parcel or parcels under one deed with the dwelling to which it is supplying water. A private water system pond may only serve one single family dwelling. If control of the watershed cannot be maintained on parcels under the same deed then other private water system sources shall be considered. The board of health shall not consider a variance to this rule.

(D) The pond shall be located at the minimum distances from sources of contamination as specified in rule 3701-28-07 of the Administrative Code. In addition, the following criteria shall be met:

(1) For purposes of this rule "watershed" means the area up gradient from the water supply that drains, channels, or otherwise directs surface water toward the water source;

(2) The watershed shall have a permanent growth of vegetation;

(3) The watershed shall be free of barns, poultry yards, sewage treatment systems, privies, orchards, cultivated fields, and other sources of contamination;

(4) The watershed shall not be used for pasture;

(5) Livestock shall be fenced or otherwise prevented from entering the pond and watershed area;

(6) The pond shall not be used for recreational purposes such as swimming, fishing, or boating;

(7) The minimum distance from the nearest building shall be ten feet; and

(8) Diversion ditches or similar devices shall be used to direct water of unsuitable quality out of the watershed and away from the pond.

(E) Any person intending to install a pond to be used as a water source shall submit a plan to the board of health as required under paragraph (F) of rule 3701-28-03 of the Administrative Code. The pond and watershed shall conform to the following basic design criteria:

(1) The watershed shall be of sufficient size to meet the requirements for pond water recharge based on local conditions as determined by the board of health. The board of health may require the watershed plan to be submitted by a professional engineer or soil scientist in accordance with paragraphs (F) and (G) of

rule 3701-28-03 of the Administrative Code;

(2) The pond shall not be recharged by pumping water from field drain tiles or drainage ditches. Ponds shall not be recharged from on site wastewater system discharges, gray water systems, curtain drains, sump pumps or washing machines;

(3) The pond may be recharged from roof water runoff. The roof area may be calculated as part of the total watershed area if it is to be included as a recharge source;

(4) The pond may be filled by a water well constructed in compliance with this chapter and also meeting the following requirements:

(a) A threaded or smooth nose faucet shall be installed near the well for collecting a water sample from the well.

(b) If the well is to be converted into a private water system well for direct use for a residence or building, an alteration permit is required to be obtained in accordance with paragraph (C) of rule 3701-28-03 and the well shall meet all applicable requirements of this chapter at the time of the alteration.

(5) Sealing materials and liners designed to reduce water loss from pond leakage shall be composed of bentonite or native clay materials sufficient to reduce pond permeability to less than 10^{-8}centimeters per second and meet NSF 61-2016 as applicable;

(6) Ponds with a surface area of between one-quarter acre and one-half acre shall have more than fifty per cent of the available pond area a minimum of at least eight feet deep at the designed full water level. For ponds with a surface area of more than one half acre at least twenty-five per cent of the pond area at the design normal water level shall have a minimum depth of eight feet;

(7) Ponds shall have side slopes no steeper than 2:1;

(8) When a dam is part of the pond construction the minimum top width of the dam shall be eight feet. The side slopes of the dam for a pond shall be no steeper than 3:1 on the dry side, and 2:1 on the wet side; and

(9) One or more spillways shall be provided so as to allow for the passage of normal water flow and of excess storm runoff around the dam. The spillways shall pass water safely to the outlet channel below without damage to the dam, or to life, structures, or property. Where applicable, spillway construction shall comply with requirements of rule 1501:14-3-11 of the Administrative Code.

(F) The size of the pond shall be adequate to meet the intended needs of the household, but shall have a minimum surface area of approximately one-quarter of an acre regardless of the pond shape.

(G) The intake for the private water system from the pond shall conform to one of the following design criteria:

(1) The intake for the water system shall be attached to a flotation device at the deepest end of the pond and shall be suspended not less than eighteen inches and not more than three feet below the water surface;

(a) A noncorroding permeable filter material or screen with openings for 0.0043 of an inch or smaller shall be incorporated into the intake; and

(b) The intake for the water system shall be connected by not less than an one and one-quarter inch

diameter flexible pipe to the waterline and shall either pass through the bank at a depth adequate to prevent freezing, or pass through the dam and be protected by sleeving.

(2) A submersible pump may be used with a cased pond intake constructed for the sole purpose of delivering water from the pond to the household. A cased pond intake shall not be deeper than the deepest portion of the pond. A cased pond intake shall not be used when there is any risk of contaminating an aquifer from the inflow of pond water.

(H) Antiseep collars shall be provided for durably and solidly installed intake and spillway inlets when such devices pass through the pond dam. For purposes of this rule antiseep collar means a projecting collar of concrete or other material built around the outside of a tunnel or conduit, under an embankment dam, to reduce the seepage potential along the outer surface of the conduit.

(I) All pond water shall be continuously disinfected and continuously filtered in accordance with the requirements of rule 3701-28-15 of the Administrative Code.

(J) All ponds in use as private water supply sources shall comply with the disinfection and filtration requirements for ponds found in rule 3701-28-15 of the Administrative Code, and paragraph (G) of this rule, when the pond is altered or repaired or as determined by the board of health in accordance with paragraph (A) of rule 3701-28-08 of the Administrative Code.

(K) The private water system pond owner shall maintain a written service contract with a registered private water system contractor for the maintenance of the continuous disinfection and filtration of the pond system for the life of system operation. A copy of the initial service contract shall be on file at the local health department prior to approval of the pond system. The initial service contract shall be for a period of no less than two years.

(L) In addition to the requirements of paragraph (K) rule 3701-28-04 of the Administrative Code, the turbidity of the pond water shall be one NTU or less after filtration and disinfection collected at the sample faucet. If the water quality measures greater than one NTU, then the treatment system shall be modified or rehabilitated by a registered private water systems contractor until that requirement can be achieved.

(M) All newly built, installed, repaired, or altered pond private water systems shall be disinfected with chlorine or disinfection products authorized by the director to reduce contamination prior to water being removed for human consumption.

(1) The registered private water systems contractor performing the construction, installation, alteration, or the person performing the repairm, shall disinfect the private water system according to this rule at the time of completion of the portion of work performed by that person.

(2) The owner of the private water system shall provide access to the system to ensure that the entire private water system, including the plumbing and all related fixtures, are disinfected in accordance with this rule, prior to placing that private water system into service.

(3) The following start up disinfection procedures apply to pond system and plumbing:

(a) All loose debris, sediment, mineral encrustation and bacterial slime shall be removed from any water storage containers prior to disinfection. A solution of fifty milligrams per liter of chlorine shall be prepared in a container.

(b) The quantity of solution prepared shall be of sufficient volume to disinfect all related storage or

pressure tanks, existing plumbing and attached fixtures. The solution shall then be circulated through the water supply system distribution lines.

(N) Valves shall be protected from frost damage and installed so that they are accessible from the surface of the ground by means of an open stack.

(O) All water treatment components shall be protected from weather, freezing, contamination, and located so as to be easily inspected, cleaned, and serviced. With the exception of basement installation, all water treatment components of the system shall be stored above ground and housed in an enclosed area.

(P) All ponds that are no longer being used as a water source for a private water system shall be decommissioned in accordance with paragraph (D)(7) of rule 3701-28-17 of the Administrative Code.

3701-28-15 Continuous disinfection, continuous filtration, cyst reduction filtration and point of entry water treatment.

(A) All private water systems using continuous disinfection and continuous filtration shall conform to the requirements of this rule.

(B) All water treatment components shall be protected from weather, freezing, and contamination, and located so as to be easily inspected, cleaned, and serviced. With the exception of basement or accessible crawlspace installation, all water treatment components of the system shall be stored above ground and housed in an enclosed area.

(C) All filter and disinfection systems shall be designed so as to meet the calculated peak demand flow requirements of a household, but be capable of providing no less than a ten gallon per minute flow.

(D) All disinfection tanks and components, filter tanks and other treatment components required in this rule shall have a legible label placed on the tank or component describing the specific function of the device. It shall be the responsibility of the installing private water system contractor to ensure that the tanks and components are properly labeled.

(E) The following private water systems shall be provided with continuous disinfection, as provided in this rule:

(1) Ponds;

(2) Springs;

(3) Cisterns;

(4) Wells constructed with less than fifteen feet of casing constructed in compliance with this chapter;

(5) Wells constructed with less than twenty-five feet, but no less than fifteen feet, of casing constructed in compliance with this chapter; and

(6) Wells with fifteen or more feet of casing that have been determined to be contaminated with bacteria that exceed the maximum contaminant level in paragraph (N) of rule 3701-28-04 of the Administrative Code shall be required to be provided with continuous disinfection if the construction of the well is determined to be in satisfactory compliance with this chapter and the aquifer is known or suspected of being contaminated with bacteria that cause the well water to exceed the maximum contaminant level in paragraph (N) of rule 3701-28-04 of the Administrative Code.

(F) Except private water systems utilizing ultraviolet light for continuous disinfection and pond filtration systems, which shall comply with the continuous filtration requirements of paragraph (J) of this rule, the following private water systems shall be provided with additional cyst reduction filtration that meets NSF 53-2016 or an equivalent standard as provided in this rule. For private water systems that utilize ultraviolet light for continuous disinfection an absolute five micron filter shall be provided for the following systems in accordance with paragraph (H) of this rule:

(1) Springs;

(2) Cisterns;

(3) Wells constructed with fifteen feet or less of casing in compliance with this chapter.

(G) A sampling faucet shall be installed after each disinfection and filtration step of a treatment train in accordance with paragraph (E)(2) of rule 3701-28-08 of the Administrative Code.

(H) Private water systems utilizing cyst reduction filtration shall meet the following requirements in addition to the requirements in paragraph (F) of this rule:

(1) The cyst reduction filters shall be installed to ensure a minimum flow rate that is adequate for the system owner's needs. Multiple cyst reduction filters used in order to ensure the minimum or greater flow rate shall be installed in parallel; and

(2) Each cyst reduction filter housing shall be clearly labeled with the size in absolute microns of the required cyst reduction replacement filter.

(I) All pond water systems shall have a point-of-entry granular activated carbon filter installed as the last step of the filtration portion of the treatment train.

(J) All pond water systems shall be continuously filtered by one of the following methods:

(1) A slow sand filter which meets the requirements of paragraph (R) of this rule;

(2) A pressurized rapid sand filter system that meets the requirements of paragraph (S) of this rule; or

(3) A pre-coat filter that meets the requirements of paragraph (T) of this rule.

(K) Where continuous disinfection is required pursuant to this chapter the means of disinfection shall be measurable and it shall conform to the following requirements:

(1) All chemical disinfectants shall be readily available;

(2) The residual of the chemical disinfectant shall be measurable by the user;

(3) Ultraviolet light disinfection system dosage shall be measured as microwatts per second per centimeter squared or equivalent millijoule. One millijoule equals one thousand microwatt seconds per centimeter squared; and

(4) Disinfection and filter systems shall be designed to meet the peak water use demands of the users or meet the maximum flow capability of the pump used.

(L) Disinfectants shall be applied prior to the water storage tank or retention tank to obtain the contact time required for the specific disinfectant used.

(1) Disinfectant solution reservoir tanks that use chlorine or iodine shall have a label applied by the contractor installing the system that states in bold one half inch lettering the warning "Failure to maintain the solution in the tank at concentrations sufficient to ensure continuous disinfection of the household water supply increases the possible health risk to the users."

(2) A disinfection system contact tank shall conform to the following:

(a) The contractor installing the system shall apply a label that identifies the component as the "retention tank for the disinfection system."

(b) For one-, two-, or three-family dwellings the disinfection system contact tank shall be a minimum of

one hundred twenty gallons per household being served and be designed to reduce short-circuiting of the disinfection solution through the contact tank. A contact tank less than one hundred twenty gallons can be used if the tank design ensures adequate contact time and is approved by the department.

(c) In the case of buildings with private water systems serving up to twenty-four people or having more than three service connections, the system contact tank shall be of adequate size to ensure at least eight minutes of contact when used at peak demand and be designed to reduce short-circuiting of the disinfection solution through the contact tank.

(d) A contact tank is not required to be installed when chlorination or iodination is being used to maintain a chemical residual in the distribution lines immediately following continuous disinfection by ultraviolet light or ozone that are installed in accordance with this rule.

(M) If chlorination is the means of disinfection, it shall conform to the following requirements:

(1) Sufficient chlorine shall be added to satisfy the demand;

(2) The CT value (contact time multiplied by the free chlorine residual in milligrams per liter) for disinfection shall be four or greater; and

(3) The free chlorine residual in the water piping system shall be a minimum of 0.4 milligrams per liter after eight minutes of contact.

(N) If an ultraviolet light (UV) system is used as the primary means of disinfection or is otherwise installed as an additional treatment device it shall meet all of the requirements of NSF 55-2017 for class A ultraviolet light treatment systems and shall be installed in accordance with the manufacturer's requirements. Ultraviolet light systems that meet only NSF 55-2017 class B shall not be used for continuous disinfection or otherwise installed on a private water systems. An ultraviolet light system used as the primary means of disinfection shall also meet the following criteria:

(1) It shall be installed with an automatic shut-off device or warning device for instances where the ultraviolet light device is not functioning to insure proper disinfection of the household water supply;

(2) The influent water shall be pre-treated to meet all water quality parameters required by the manufacturer of the ultraviolet light unit or as required under NSF 55-2017 class A, including, but not limited to, hardness, iron, manganese, TDS, and turbidity in order to ensure optimal disinfection. The ultraviolet light unit shall be installed after any equipment used to soften the water or to remove iron or manganese or to improve clarity;

(3) An absolute filter size of no larger than five microns shall be installed in accordance with NSF 55-2017 class A prior to treatment of the water by the ultraviolet equipment;

(4) Where a private water system provides water to more than one dwelling or service connection, including all multi-family buildings, and ultraviolet light is used as the primary means of disinfection then either;

(a) Continuous disinfection shall be installed to maintain a chlorine residual of at least 0.2 milligrams per liter in the water distribution lines; or

(b) An NSF 55-2017 class A ultraviolet light device shall be installed in each dwelling after each service connection.

(5) If ultraviolet light is used for continuous disinfection of a private water system pond, additional oxidation using chlorine, iodine, or ozone shall be included as part of the disinfection and filtration treatment train.

(O) If iodination is the means of disinfection, it shall conform to the following requirements:

(1) Sufficient iodine shall be added to satisfy the demand;

(2) The CT value (contact time multiplied by the free iodine residual) for disinfection shall be ten; and

(3) The free iodine residual in the water piping system shall be between 0.5 and one milligram per liter.

(P) If ozonation is the means of disinfection it shall be generated on site by corona arc discharge and conform to the following requirements:

(1) Sufficient ozone shall be added to satisfy the demand and the CT value shall be no less than 0.6 at pH seven and five degrees Celsius (CT equals residual ozone concentration multiplied by the contact time);

(2) The water contact shall be achieved by the means of a combination of a venturi nozzle and cyclonic bubble diffuser;

(3) Ozone must have a minimum detectable residual of 0.1 milligram per unit after six minutes of contact;

(4) Ozone generators shall have air drawn through the system under a vacuum in order to prevent ozone gas leakage into the house;

(5) Ozone generators shall have air flow meters installed before the ozone generation chamber to insure proper air flow and to help detect down stream injection tubing cracks or breaks;

(6) All ozone generation chambers shall be constructed of stainless steel or of a material of equivalent resistance to destruction from ozone;

(7) Ozone generators shall have corona arc indicating lights.

(Q) All filter systems shall be installed so that a backflow prevention device or air gap protects the water system from the filter system backwashing discharge in accordance with rule 3701-28-08 of the Administrative Code.

(R) For the purpose of this rule "slow sand filtration" means a process of passing raw water through a porous granular medium by gravity, at a rate of less than seventy-five gallons per day per square foot of sand area, with substantial removal of particles by physical and biological mechanisms. Slow sand filters shall meet the following criteria:

(1) The filter tank shall be watertight and durable with a reasonably smooth, clean interior surface and shall be made of materials described in paragraph (A) of rule 3701-28-12 of the Administrative Code;

(2) All joints, connections, and other seems between component parts shall be sealed with non-toxic waterproof material that meets NSF 61-2016 to prevent the loss of stored water and the infiltration of surface water;

(3) The lower distribution system shall be non-clogging and resistant to corrosion, physical deformation and wear, provide adequate flow and distribution to uniformly collect filtered water during the filter cycle, and except for filters having dome or similar type under drains, have openings three-sixteenths of an

inch (4.8 millimeter) or larger;

(4) All components shall be replaceable through a manhole in the filter tank;

(5) Only washed sand and gravel shall be used. Filter sand shall be hard angular silicon material free of carbonates or other foreign material. Beach sand shall not be used. The effective sand size shall be between .30 and .45 millimeters. Sand uniformity coefficient shall not be greater than two and one-half. Gravel used to support filter sand shall be rounded material, free of limestone and clay, and consist of at least three layers graded to prevent intermixing;

(6) One inch gravel shall be placed six inches thick below the one-half inch gravel. One-half inch gravel shall be placed three inches thick below the three-eighths inch gravel. Three-eighths inch gravel shall be placed three inches thick below the sand. Sand shall be placed from the surface to a minimum depth of thirty inches. A fabric pre-filter may be used on the surface of the sand;

(7) Water shall be applied to the filter at rate of no more than 0.052 gallons per minute per square foot of filter area;

(8) The minimum filter size dimensions shall be based on water usage of one hundred twenty gallons per bedroom per day from the following chart:

Water needed Gallons per day	Bedrooms	Filter surface area (square feet)	Square or rectangular (feet)	Round diameter (feet)
360	3	5.7	2 x 3	3
480	4	7.1	2 x 4	3
600	5	8.6	3 x 3	4

(9) Include a water storage tank with a capacity of no less than two hundred gallons or sixty gallons per bedroom per day, whichever is larger.

(S) For the purposes of this rule "rapid sand filter" means a filter system for treating water passing through a granular medium of approximately twelve to twenty micron filtration capability that includes additional components for filtration and/or coagulation of smaller material while maintaining pressure throughout the system and distribution line. A rapid sand filter alone shall not be used for cyst reduction. In addition to the requirements of paragraph (J) of this rule, pressurized rapid sand filter systems shall meet the following criteria:

(1) A pressurized rapid sand filter system shall include:

(a) Chemical coagulation meeting NSF 60-2016 followed by a retention tank specifically for coagulation, followed by the rapid sand filter, and if ultraviolet light is not being utilized for continuous disinfection, followed by a cyst reduction cartridge filter(s) meeting NSF 53-2016 or equivalent. Chemical coagulation shall be adjusted as pond water condition change;

(b) A pressurized rapid sand filter, followed by a nominal ten micron cartridge filter followed by an absolute five micron cartridge filter, and if ultraviolet light is not being utilized for continuous disinfection, followed by a cyst reduction cartridge filter(s) meeting NSF 53-2016 or equivalent for cyst reduction; or

(c) Alternative coagulation or filtration techniques as approved by the department.

(2) All cartridge filter housings shall be clearly labeled for the specific required replacement filter size in absolute and/or nominal microns.

(3) Any chemical used for coagulation shall be listed on NSF 60-2016.

(4) The rapid sand filter component shall contain bed depth of no less than twenty-four inches and a volume of no less than 1.5 cubic feet of sand or the equivalent filter material listed on NSF 61-2016. The effective sand size shall be between .30 and .45 millimeters. The sand uniformity coefficient shall not be greater than 2.5.

(a) Granular activated carbon or other treatment media that meets NSF 61-2016 may be used in the filter tank in addition to the required filtering media.

(b) The filter media tank shall be labeled describing all filter material enclosed, including type(s), size, and uniformity coefficient.

(5) Service flow rates of the rapid sand filter shall not exceed filter media manufacturer's specifications and shall provide adequate flow or storage capacity to meet the private water system demand.

(T) Pre-coat filters shall meet the following criteria:

(1) The pre-coat material shall be diatomaceous earth or processed perlite and be United States environmental protection agency graded material suitable for use with potable water;

(2) The pre-coat layer shall be one-eighth to one-fifth inches thick or equivalent to 0.2 pound per square foot;

(3) The designed filtration rate shall not exceed two gallons per minute per square foot of septum area; and

(4) The size of the filter shall be sufficient to meet the intended household usage per person per day.

(U) Mechanical in-line cartridge filters shall not be used in lieu of the filter designs required under this rule. However, mechanical in-line cartridge filter systems tested against NSF 53-2016, may be used in addition to the filter designs required under this rule.

3701-28-16 Registration of water haulers, hauled water trucks, inspections.

(A) All water haulers shall comply with the requirements of this rule. All water received from transportation equipment shall be potable and from an approved public water system and shall have a minimum of 0.2 milligram per liter of free residual chlorine at the time of delivery.

(B) The outlet connections at filling points shall be constructed and protected so that no foreign material likely to cause contamination or pollution of the water can come in contact with the outlet when not in use, or with the water during the time of delivery.

(C) All water haulers shall register annually with the board of health in which the applicant's principal place of business is located. and shall not deliver water to a private water system before they have been registered and inspected. Water haulers residing outside of the state shall make application for registration and obtain inspection(s) from the board of health having jurisdiction over the location where they first intend to deliver water.

(1) Registrations shall not be transferable and shall and expire on December thirty-first of each calendar year.

(2) Water haulers that do not haul water year-round shall become registered and their equipment inspected prior to any water deliveries occurring.

(3) The board of health shall provide a list of all water haulers to the department by March 1 of each year. A list of any water haulers who register after March 1 shall be provided to the department according to the following schedule:

(a) For registrations received, or additional pieces of equipment added by a company, on or after the first day of January but not later than the thirty-first day of March, transmit the list not later than the fifteenth day of May;

(b) For registrations received, or additional pieces of equipment added by a company, on or after the first day of April but not later than the thirtieth day of June, transmit the list not later than the fifteenth day of August;

(c) For registrations received, or additional pieces of equipment added by a company, on or after the first day of July but not later than the thirtieth day of September, transmit the list not later than the fifteenth day of November;

(d) For registrations received, or additional pieces of equipment added by a company, on or after the first day of October but not later than the thirty-first day of December, transmit the list not later than the fifteenth day of February of the following year.

(4) The list(s) provided by the board of health to the department shall include:

(a) Name of the water hauling company;

(b) Name of the owner of the water hauling company;

(c) Address of the water hauling company;

(d) Phone number of the water hauling company;

(e) Number of pieces of transportation equipment belonging to the water hauling company that pass inspection by the health jurisdiction; and

(f) Public water supply location(s) utilized by the water hauling company.

(D) All transportation equipment used in the distribution of potable water, including but not limited to tank trucks, tank cars, and tank wagons, shall be inspected for compliance with this rule and approved if in compliance with this rule annually, by the board of health having jurisdiction in the health district in which the applicant's principal place of business is located each year prior to hauling water. The board of health shall establish a fee for one annual inspection of each vehicle.

(E) A water hauler's transportation equipment is subject to inspection by the board of health at any time for suspected violations.

(F) Any transportation equipment used in the distribution of potable water shall comply with the following:

(1) The water hauling tank or container shall not have been previously used to transport a noxious, hazardous, or a toxic substance or liquid;

(2) The potable water transportation and distribution equipment shall not be used to transport or distribute water from streams, rivers, springs, ponds, lakes or other water source not approved as a public water system for the use in a private water system;

(3) All equipment used in this distribution of potable water shall be clean and sanitary and protected from contamination at all times;

(4) Each registered tank or container shall display the name and telephone number of the water hauler with individual characters that measure at least three inches high by one inch wide and a current approval sticker issued by the board of health;

(5) Tanks and other containers with which water comes in contact are to be made of materials that meets NSF standard 61-2016, except:

(a) Stainless steel;

(b) Aluminum used in the water hauling products must be one of the following grades that can be found in NSF standard 51-2014:

(i) Wrought alloys 1000-6000 series;

(ii) Casting alloys 218, 308, 319, 332, 356, 360, 413, B443, 514, 520, 713;

(c) Plastic tanks manufactured with polymer products meeting FDA 21 C.F.R. part 177 "Indirect Food Additives: Polymers" (1996) requirements for contact with food are regarded as acceptable;

(6) Tanks must be so constructed that every portion of the interior can be easily cleaned and sanitized. Lead, cadmium, and other toxic metals are not to be used on surfaces which come in contact with the water;

(7) The interior, piping, valves, and permanent or flexible connections shall be so constructed and of materials which meet NSF standard 61 2016 and can be easily cleaned and sanitized;

(8) The inlet or opening to every container shall be so constructed to prevent the entrance of insects, rodents or other foreign material that may cause contamination of water. With the exceptions of cleaning, inspecting, or filling the tank, the inlet openings shall be kept closed at all times;

(9) Outlet connections shall be so constructed and protected as to prevent contamination of potable water. Protection from contamination shall be provided at times of delivery and non-use;

(10) Flexible connector ends shall be protected and capped at all times except during filling or emptying of the transportation equipment.;

(11) Any tank or other container that is used for the purpose of hauling water shall only be used to haul potable water, milk, or a food grade liquid and shall not be used to carry any other substances;

(12) A water hauler shall keep equipment to test the free residual of chlorine in the tank and shall test the tanks of water that are delivered. If less than 0.2 milligram per liter is detected then the hauler shall add sufficient chlorine to obtain the residual chlorine concentration required by paragraph (A) of this rule; and

(13) A water hauler shall keep a record of all water deliveries from the location of public water supply fill-up to the locations of all deliveries to private water systems for a period of ninety days.

(G) The water contact surfaces and equipment shall be cleaned and disinfected in accordance with the most current guidance:

(1) Before it is put into use for the purposes of hauling potable water;

(2) When the system or any of its parts have been dismantled or replaced for purpose of repair, maintenance or alteration;

(3) Any time contamination is suspected; and

(4) At least weekly during periods of operation.

(H) Each tank load of water shall be dosed with a sufficient amount of chlorine to produce a minimum chlorine residual of 0.2 milligrams per liter but no more than four milligrams per liter.

(I) Any board of health or the department may order any water hauler to cease water deliveries or the use of any water transportation equipment for violation of this rule or if the board of health or the department suspects contamination of the water hauling equipment or the hauled water.

3701-28-17 Procedures for the sealing and decommissioning of private water systems.

(A) All private water systems that are not providing the source of water for human consumption, as defined in paragraph (CCC) of rule 3701-28-01 of the Administrative Code, shall either be sealed or decommissioned in accordance with this rule or maintained in strict compliance with all applicable requirements of this chapter.

(B) Upon completion of testing, a test hole shall either be permanently sealed or converted into a well with the minimum installation of well casing, grout, and cap, and the construction shall comply with all applicable requirements of this chapter.

(C) All dry holes that are not being used as a private water system shall be sealed in accordance with the provisions of this rule within ten days or may be converted to a geothermal system and meet the requirements of paragraph (B) of this rule.

(1) All uncased boreholes to be converted for geothermal use shall be protected with primary casing immediately upon determination that the borehole is a dry hole in order to prevent surface water infiltration.

(2) All dry holes or test holes to be converted for geothermal use shall be completed as a geothermal well within the remaining time period of the permit.

(D) When a replacement private water system, or a public water system is installed, or a connection is made to a public water system, any private water system that is not providing the primary source of water shall be sealed or decommissioned pursuant to the provisions of this rule within thirty days, unless the following conditions can be met:

(1) The private water system owner demonstrates to the satisfaction of the board of health that the private water system(s) will not cause or contribute to contamination of the ground water supply, present a safety hazard, or present a public health nuisance;

(2) Except for conditions cited in this rule, the private water system is, and will be maintained in compliance with this chapter;

(3) Demonstration of compliance for a well must include an ability to be tested, a water sample, the presence of an operational pumping system and one or more of the following:

(a) A well log;

(b) A downhole camera video survey;

(c) A dye test; or

(d) An assessment performed by a registered private water systems contractor or the board of health that the system meets the requirements of this chapter.

(4) A rainwater cistern or hauled water storage tank being kept to retain water as a nonpotable water source must:

(a) Include an operational pumping system;

(b) Provide no physical cross connection to another water system in accordance with paragraphs (F) and

(G) of rule 3701-28-08 of the Administrative Code; and

(c) A rainwater cistern or hauled water storage tank being kept to retain water as a non potable water source that meets the requirements of this paragraph is exempt from the requirements of rule 3701-28-15 of the Administrative Code for continuous disinfection and cyst filtration.

(5) Plastic tanks shall not be re-purposed as a room. A concrete rainwater cistern or hauled water storage tank to be retained as a complete structure shall be:

(a) Emptied of all accumulated water;

(b) Disconnected from all water collection systems;

(c) Disconnected from the distribution systems for the pressure tank, all water treatment, and plumbing and provide no physical cross connection in accordance with paragraphs (F) and (G) of rule 3701-28-08 of the Administrative Code; and

(d) Compliant with local building codes as follows:

~~(d)~~ (i) Be determined to be acceptable as a structure under local building codes; or

~~(e)~~ (ii) For a concrete rainwater cistern or hauled water storage tank beneath the foundation of a dwelling or building, be determined by local building codes sealing the rainwater cistern or hauled water storage tank in compliance with this rule could compromise the integrity of the foundation.

(6) All rainwater cisterns and hauled water storage tanks that are permanently out of service and not being kept by the property owner shall be:

(a) Disconnected from the distribution systems, the pressure tank, all water treatment, and plumbing and provide no physical cross connection in accordance with paragraphs (F) and (G) of rule 3701-28-08 of the Administrative Code;

(b) Disconnectedfrom all water collection systems;

(c) Emptied of all accumulated water;

(d) Rendered non-watertight by removing at least one wall of the cistern or hauled water storage tank, all or in part, to prevent the accumulation of water;

(e) Removed when possible, if a plastic tank; and

(f) Completely filled with an inert solid material to prevent collapse.

(7) Springs and ponds no longer providing the source of water for a private water system shall be decommissioned by disconnecting distribution systems from the pressure tank, all water treatment, and plumbing and provide no physical cross connection in accordance with paragraphs (F) and (G) of rule 3701-28-08 of the Administrative Code.

~~(b)~~ (a) Springs and ponds retained by the property owner as a non-primary potable water source are exempt from the water treatment disinfection and filtration requirements of rule 3701-28-15 of the Administrative Code;

~~(c)~~ (b) Ponds retained by the property owner as a non-primary potable water source are exempt from the requirements of rule 3701-28-14 of the Administrative Code; and

~~(d)~~ (c) Springs retained by the property owner as a non-primary potable water source are exempt from the requirements of 3701-28-13 of the Administrative Code.

(E) Except when a private water system well is sealed, a completion form for decommissioning or retaining a private water system no longer providing water for human consumption as defined in paragraph (CCC) of rule 3701-28-01 of the Administrative Code shall be filed with the board of health.

(F) When the private water system is no longer a source of water for human consumption as defined in paragraph (CCC) of rule 3701-28-01 of the Administrative Code due to the connection to a public water supply, installation of a backflow prevention device containing a dual check valve assembly meeting the requirements of American society of sanitary engineering (ASSE) standards 1013 or 1015 is required.

(G) Except as provided in paragraph (I) of this rule, the owner of property on which a permanently out of service well or other private water system is located shall be responsible for the sealing of the well or decommissioning of the other private water system, unless a written contract between the property owner and a registered contractor provides otherwise.

(H) If the department determines that a registered contractor has improperly located or constructed a private water system, the water system contractor shall be responsible for sealing the well or decommissioning the other private water system or bringing the private water system into compliance.

(I) Information regarding the construction characteristics of the well or dry hole shall be obtained by the registered contractor intending to perform the work prior to the sealing of the well or dry hole. This information may be obtained from one or more of the following:

(1) The well log and drilling report filed in accordance with section 1521.05 of the Revised Code; or

(2) Surveys of the well or dry hole completed by using a borehole video camera, casing depth indicator, or caliper log.

(J) Sealing materials approved for use in rule 3701-28-09 of the Administrative Code shall be used to seal private water systems, test wells and dry holes.

(K) Except for shallow sand point wells where the entire casing is removed, all wells to be sealed, dry holes, or test wells shall be sealed in accordance with the following requirements, as applicable:

(1) To the extent possible, all obstructions should be removed from the well including pumps and related equipment, drop pipes, pitless adapters, suction lines, trash or other debris. Pumps that cannot be removed shall be pushed to the bottom of the well if possible, or left in place if it is not possible to push it to the bottom of the well.

(2) Well casing may be left in place, or may be removed, ripped or perforated to allow for sealing of the annular space. Unless permanently attached, all liner pipe should be removed from the well prior to placement of sealing materials. If the well casing or liner pipe is left in place, the private water systems contractor must ensure that grout materials are able to penetrate all annular spaces.

(3) If there is water flowing from around the outside of the well casing or there is gravel packing connecting two or more hydraulic zones the well shall be over drilled.

(4) Sealing materials authorized in rule 3701-28-09 of the Administrative Code shall be placed in the well in accordance with the following requirements:

(a) During the placement of grout slurry by pressure grouting methods, grout shall be placed from the bottom of the well or dry hole upwards in one continuous operation until cement or bentonite based grout of approximately the same density as the grout being pumped is coming out of the top of the well or dry hole.

(b) Cement and concrete grout slurries may be gravity poured into a dry hole where no water is present in the well or borehole.

(c) Where the borehole conditions, including depths at which water was encountered during the drilling process, and geologic formations are known via a well log or a down hole camera video recording, clean sand, gravel, or fire clay may be placed adjacent to screened or aquifer zone(s) greater than ten feet below the bottom of the casing and no closer than twenty-five feet below ground surface. If the depth to the aquifer is unknown, then the entire well or borehole shall be filled with concrete, coarse grade or pelletized bentonite. Well sealing must ensure that no mixing of water between aquifers will occur.

(d) When dry pouring using course grade or pelletized bentonite the following requirements shall be met:

(i) Coarse grade or pelletized bentonite shall be poured slowly into the top of the well or dry hole to prevent bridging in the casing or borehole, in accordance with the following procedures:

~~(A)~~ (a) Coarse grade or pelletized bentonite shall be poured over a wire mesh screen to keep the fine bentonite powder from entering the well or dry hole.

~~(B)~~ (b) Screened coarse grade or pelletized bentonite shall be poured at a continuous rate no faster than the manufacturer's recommendation or two minutes per fifty pounds.

~~(C)~~ (c) The pouring process shall be halted intermittently to lower a weighted measuring tape into the well to determine the top of the sealing products and confirm that bridging has not occurred. A tamping device shall be used where possible to break any bridges that may form.

~~(D)~~ (d) Where the borehole or well is dry, the bentonite must be periodically hydrated with water in accordance with the manufacturer's requirements.

(ii) Fine bentonite particles that accumulate in the shipping container shall not be used.

(5) After the grout slurry sealing material has been placed into the well, dry hole or test hole the sealing material shall assessed a minimum of twelve hours after placement to determine whether any settling has occurred. If settling has occurred, then additional grout shall be placed into the remaining void space.

(6) The total volume of sealing materials used to seal a well shall be not less than eighty per cent of the total volume of the space to be filled.

(7) Any remaining casing shall be cut off to a minimum depth of two feet below grade where possible. If a casing is terminated in a cement floor or structure, the casing may be cut off level to the grade of the cement floor or structure and finished with a level concrete pour.

(8) Well pits shall be removed by collapsing at least one wall, breaking up the floor, and removing or disconnecting all drains, and backfilling the remaining void space with native clay soils and graded to ensure water drains away.

(9) The remaining hole shall be filled with clean soil and graded to ensure that water drains away from the sealed well or dry hole.

(10) A well sealing report as required under section 1521.05 of the Revised Code shall be filed with the board of health, the department of natural resources division of geological survey, a copy provided to the well owner, and a copy retained by the registered contractor.

(L) Shallow sand point wells where the entire casing is removed, and the resulting formation collapse will restore the aquifer to its natural state shall be sealed in accordance with the following requirements:

(1) The entire length of casing shall be removed,

(2) A minimum of a one-foot radius around the location of the well casing shall be excavated to a minimum depth of two feet below grade and a one foot thick layer of coarse grade or pelletized bentonite or concrete grout shall be added. The bentonite shall be hydrated with five gallons of water per fifty pounds of bentonite if the excavation is dry.

(3) The remainder of the excavation shall be filled with clean clay or native soils as appropriate for the site and graded to ensure drainage away from the area.

(4) A well sealing report as required under section 1521.05 of the Revised Code shall be filed with the board of health, the department of natural resources division of geological survey, a copy provided to the well owner, and a copy retained by the registered contractor.

(M) In addition to the requirements of paragraphs (B) to (K) of this rule, wells drilled through multiple unconsolidated and consolidated aquifers that are not flowing at the surface shall be sealed in accordance with one of the following requirements, as applicable:

(1) The well shall be pressure grouted using concrete grout in accordance with paragraph (F) of rule 3701-28-09 of the Administrative Code or bentonite grout in accordance with paragraph (G) of rule 3701-28-09 of the Administrative Code.

(2) If the well is less than two hundred feet deep and greater than or equal to four inches in diameter or if the well is less than one hundred feet in depth and less than four inches in diameter, coarse grade bentonite may be poured into the well in accordance with paragraph (H) of rule 3701-28-09 of the Administrative Code.

~~(4)~~ (3) If detailed construction and geologic data is available, then clean sand, gravel, or fire clay may be placed adjacent to the aquifer zones with grout placed adjacent to the confining units. The well shall then be sealed from the top of the uppermost aquifer to the surface with cement grout in accordance with paragraph (F) of rule 3701-28-09 of the Administrative Code or bentonite grout in accordance with paragraph (G) of rule 3701-28-09 of the Administrative Code.

(N) For purposes of this rule "dug or bucket drilled well or dry hole" means a well consisting of a large diameter hole, deeper than it is wide, constructed into the ground, usually by hand, but if by mechanical means, by methods other than drilling, jetting, auguring or boring, and within which the side walls are supported by stone, brick, tiles or other similar materials. In addition to the requirements of paragraphs (B) to (K) of this

rule, dug wells shall be sealed in the following manner.

(1) All loose debris, drop pipes, pumps or other foreign materials shall be removed from the well as practical.

(2) Notwithstanding paragraph (K)(2) of this rule, the top three feet of casing, wall or liner material shall be removed and the area shall be excavated six inches beyond the original borehole;

(a) The entire depth of the dug well shall be filled with concrete, concrete mixes with aggregate sizes greater than medium sand up to 3/4 inch gravel may be used for the purposes of sealing a dug well; or,

(b) the dug well shall be sealed in the following manner:

(i) The well or hole shall be filled with gravel adjacent to the producing zone in the well. The remainder of the well shall be filled with concrete, coarse grade or pelletized bentonite, fire clay, clay, or cuttings to within fifteen feet of the natural ground surface.

(ii) A one foot thick layer of concrete, coarse grade or pelletized bentonite shall be placed from fourteen to fifteen feet below the natural ground surface.

(iii) A one foot thick layer of coarse grade or pelletized bentonite or concrete grout shall be added at the level at which the casing, wall, or liner material was removed and shall extend beyond the outside diameter of the well. The bentonite shall be hydrated with five gallons of water per fifty pounds of bentonite if the well is dry.

(iv) The remainder of the borehole shall be filled with clean clay or native soils as appropriate for the site and graded to ensure drainage away from the well.

(O) In addition to the requirements of paragraphs (B) to (K) of this rule, wells constructed using a bucket auger shall be sealed in the following manner:

(1) The well shall be sealed in accordance with paragraphs (B) to (K) of this rule to within fifteen feet of the natural ground surface.

(2) All well casing, liner pipe and gravel pack shall be removed to a depth of fifteen feet from the natural ground surface.

(3) The remaining borehole shall be filled with concrete, coarse grade or pelletized bentonite or a two foot layer of concrete, coarse grade or pelletized bentonite may be placed from thirteen to fifteen feet from the natural ground surface and the remainder of the borehole filled with clean clay or native fill material as appropriate for the site.

(4) The surface shall be graded to ensure drainage away from the well.

(P) In addition to the requirements of paragraphs (B) to (K) of this rule, wells that are flowing shall be sealed in accordance with the following requirements, as applicable:

(1) If possible, the casing shall be extended until the flow of water over the top of the casing stops.

(a) The well shall be pressure grouted using concrete or cement grout in accordance with paragraph (F) of rule 3701-28-09 of the Administrative Code; or

(b) When the flow can be controlled by extending the casing and if the well is less than two hundred feet deep, a sufficient weight of coarse grade or pelletized bentonite to permanently inhibit the natural flow may be poured into the well in accordance with paragraph (H) of rule 3701-28-09 of the Administrative Code.

(c) If the casing was extended and is intended to be cut off at the surface when the well has been sealed, then the concrete or cement shall be allowed to setup, or the coarse grade or pelletized bentonite allowed to fully hydrate prior to cutting off the casing extension.

(d) Bentonite slurries shall not be used for sealing flowing wells.

(2) If the hydrostatic head is too high to permit casing extension, one of the following requirements shall be met:

(a) An inflatable packer shall be installed at the top of the producing formation to stop or restrict the flow of water. The well shall then be pressure grouted using cement or concrete grout in accordance with paragraph (F) of rule 3701-28-09 of the Administrative Code through the packer from the bottom of the hole to the bottom of the packer. The packer shall then be deflated and pressure grouting shall continue to the surface;

(b) A shut-in device shall be installed at the top of the well to prevent flow. A conductor pipe shall be inserted through the shut-in device and the well shall be pressure grouted using cement grout in accordance with paragraph (F) of rule 3701-28-09 of the Administrative Code from the bottom of the well to the ground surface;

(c) Clean, washed gravel may be poured into the well to reduce the flow of water to a point where an adequate weight of concrete or cement can still be placed to control the flow. The well shall then be pressure grouted using cement grout in accordance with paragraph (F) of rule 3701-28-09 of the Administrative Code from the top of the gravel to the ground surface; or

(d) Cement grout slurries shall be used. Additives to increase the density of the cement may be used to control the flow of water. Cement grout shall be placed in accordance with paragraph (F) of rule 3701-28-09 of the Administrative Code and appropriate placement techniques shall be used to ensure that separation of the cement does not occur during the grouting process.

(Q) In addition to the requirements of paragraphs (B) to (K) of this rule, wells drilled through fractured or cavernous formations where the size of the fracture or cavern is greater than one foot in thickness, or mine shafts shall be sealed in compliance with the following requirements:

(1) The depth and thickness of the fractured, cavernous zone or mine shaft shall be determined, if possible:

(a) Where the fractured, cavernous zone or mine shaft is greater than twenty-five feet from the ground surface, the borehole or well below the fractured zone shall be sealed in accordance with this rule and a plug consisting of a packer, shale basket, or other similar device shall be installed above the fractured or cavernous formation, with grout materials placed above the plug to the ground surface, or the intersection of the borehole or well and the fractured or cavernous zone shall either be filled with clean disinfected gravel, or left open, and the remainder of the borehole sealed to the ground surface.

(b) Where the fractured, cavernous zone or mine shaft is less than or equal to twenty-five feet from the ground surface, then the borehole or well shall be filled with cement grout with additives that

promote bridging across the fractured, cavernous zone or mine shaft.

(2) The remainder of the well or borehole shall then be grouted in accordance with this chapter.

3701-28-18 Registration and bonding of private water systems contractors.

(A) As a condition of doing business in this state, private water systems contractors shall annually register with the department and comply with the surety bonding requirements of section 3701.344 of the Revised Code and the requirements of this rule.

(1) Only registered contractors may construct, alter, develop, service, repair, install pumping equipment for a private water system, seal private water systems, drill water wells, install pitless adapters, perform service, maintenance or other repairs to private water system treatment systems, or perform inspections, evaluations, or sampling for hire of private water systems.

(2) With the exception of paragraph (A)(1) of this rule, registration is not required of:

(a) Any person who performs labor or services as an employee under the direct supervision of a registered contractor.

(b) Any private water system owner who performs repair, maintenance, or service work which does not require a permit on the private water system serving his dwelling house, or any person who aids the owner with this work without compensation.

(c) Persons exempt from registration under this paragraph shall comply with all applicable rules of this chapter.

(3) With the exception of drilling a well or property rentals in which they do not reside, owners of a primary or secondary property constructing a hauled water storage tank, spring, or pond, constructing any or all parts of a private water system pumping or distribution system, installing point of entry private water system disinfection or treatment system, altering a private water system, or sealing private water systems for their dwelling house shall obtain a registration to perform work, but are exempt from the bonding and business liability insurance requirements established in paragraph (B) of this rule, and may only perform work on residences they own.

(4) Owners of property rentals in which they do not reside, or owners drilling a well for construction or alteration purposes shall obtain a registration to perform work, but are exempt from the business liability insurance requirements established in paragraph (B) of this rule, and may only perform work on residences they own.

(5) For purposes of this rule "direct supervision" means that a registered private water systems contractor instructs and controls the person claimed to be supervised, that the person is an employee of the registered private water systems contractor, and that the registered private water systems contractor is responsible for the actions of that person and is reasonably available to that person if and when needed, even though such registered private water systems contractor may not be physically present at the work site.

(6) Any person who is performing work on a private water system that is not subject to paragraphs (A)(1) to (A)(5) of this rule, shall immediately cease work on the private water system at the order of the board of health or the department.

(7) Subcontractors who perform electrical, welding, or excavation work under contract for a registered private water systems contractor are not required to obtain a registration as a private water systems contractor.

(8) A registered sanitarian or sanitarian in training employed by the board of health having jurisdiction where

the private water system is, or will be, located and is performing inspections and collecting samples on behalf of the board of health is not required to obtain registration as a private water systems contractor.

(9) Additionally, registration as a private water systems contractor is not required for water sample collection without interpretation of the results when performed by one of the following:

(a) A person holding a current Class A, I, II, III, or IV public water systems operator certification from the Ohio environmental protection agency (EPA), as authorized under Chapter 3745-7 of the Administrative Code; or

(b) A person employed by a laboratory holding a current drinking water laboratory certification from Ohio EPA, as authorized under Chapter 3745-89 of the Administrative Code, or an equivalent national certification for the analysis of drinking water.

(B) Requirements for registration.

(1) Application for annual registration as a private water systems contractor shall be made to the director on forms prescribed and provided by the department of health. A complete application shall include:

(a) For registrations submitted prior to the work that requires registration, a two hundred fifty dollar nonrefundable registration fee made payable by check or money order to "Treasurer, State of Ohio," or by other payment method approved by the department.

(b) For registrations submitted after the work that requires registration has already been performed or a private water system has been constructed, a five hundred dollar nonrefundable registration fee made payable by check or money order to "Treasurer, State of Ohio," or by another payment method approved by the department.

(c) For registrations submitted by property owners registering to perform work only on the private water system serving their property, a sixty-five dollar nonrefundable registration fee made payable by check or money order to "Treasurer, State of Ohio," or by another payment method approved by the department.

(d) An annual registration bond, complying with paragraph (D) of this rule, executed by the applicant as principal, and a surety company authorized to do business in the state as surety, in the sum of ten thousand dollars available for each calendar year coinciding with the applicant's registration. Applicants for a private water systems contractor registration that have not previously held a valid registration, or applicants whose registration has been suspended, shall submit a registration bond in the sum of twenty thousand dollars for a period of three registration years. Applicants with a valid bond claim in the prior registration year shall also submit a registration bond for twenty thousand dollars for a period of three registration years. Upon the third registration year with no valid bond claim, new or previously suspended applicants, or applicants with prior valid bond claims, may submit a bond of ten thousand dollars the following registration year. For the purposes of this rule, any registered private water systems contractor who allows their registration to lapse for a period greater than twelve months shall be considered a new registrant;

(e) The surety bond shall run to the state as obligee and shall be for the benefit of any aggrieved party for damages incurred as a result of a violation of this chapter. The bond shall provide that the aggregate liability of the surety for any and all breaches of the conditions of the bond shall in no event exceed the penal sum of the bond for the year of registration;

(f) Proof of not less than five hundred thousand dollars of general business liability insurance;

(g) Starting with the first full registration year after the effective date of these rules or a new private water systems contractor registration, any renewing private water systems contractor must submit proof of completion of at least six continuing education hours during the previous calendar year through educational programs approved by the department of health or demonstration of competency obtained through one of the following mechanisms:

(i) Provide proof of holding a current Class A, I, II, III, or IV public water systems operator certification from Ohio EPA as authorized under Chapter 3745-7 of the Administrative Code;

(ii) Provide proof of current status as a water quality association certified water specialist (CWS), certified installer (CI), certified service technician (CST), master water specialist (MWS), or master service technician (MST);

(iii) Provide proof of current status as a national groundwater association certified well driller (CWD), certified pump installer (CPI), or master groundwater contractor (MGWC); or

(iv) Other continuing education programs as approved by the director.

(h) Any other information as required by the director.

(2) An applicant which is a partnership, corporation or other business association, shall designate one partner, officer, or director who shall be the company's representative to register on the company's behalf, and who shall be responsible to ensure compliance with this chapter.

(3) An applicant or owner in the case of a partnership, corporation or other business association may submit with their applications, proof that they are a service member or veteran, or the spouse or surviving spouse of a service member or veteran to receive priority expedited licensure processing. The applications will be reviewed within five business days of receipt and before all other applications for licensure.

(a) The acceptable proof of service member/veteran status documents are:

(i) Department of defense identification card (active, retired, temporary disability retirement list (TDRL));

(ii) DD214 military discharge certificate indicating disposition of discharge;

(iii) Report of separation from the national archives national personnel records center in St. Louis, Missouri; or

(iv) Veterans identification card from the department of veterans affairs.

(b) All acceptable proof documents, except veterans identification card, must show the veteran status as honorable, general, general under honorable conditions, or discharged or released under conditions other than dishonorable.

(4) The applicant for a registration shall provide to the director within thirty days of the receipt of the request, all additional requested information. If the director does not receive the requested information within thirty days, the director may consider the application abandoned. Any further consideration for a new or renewal registration shall be pursuant to another application accompanied by another nonrefundable

registration fee.

(C) Registration issuance and renewal.

(1) A private water systems contractor shall submit its application for the renewal of its private water systems contractor registration, along with the fees and information required under paragraph (B) of this rule, by the last day of December of each calendar year. Upon receipt of an application form for registration and the information and fees required under paragraph (B) of this rule, the department shall conduct a review to determine if the information is accurate and complete, and that the private water systems contractor has no unresolved bond claims or outstanding violations of this chapter.

(a) Upon determination that the application and information is accurate and complete, the director shall furnish the registrant with documentation of a valid and current registration containing the name of the registrant, the name of the registrant's representative, if applicable, the registrant's registration number, and the registration's expiration date;

(b) Upon determination that the application and information is incomplete, the department shall notify the applicant of the information that is required and shall not issue a registration until all required materials are received; or

(c) Upon determination that the applicant has unresolved bond claims or violations of this chapter outstanding longer than six months with no corrective action plan submitted to the department by the applicant, the director shall deny the private water systems contractor registration.

(d) The private water systems registration becomes valid upon issuance by the director.

(2) In the case of an applicant subject to paragraph (B)(2) of this rule, the partnership, corporation, or other business association and not the representative designated in accordance with paragraph (B)(2) of this rule shall be the registrant. When the representative is no longer associated with the registrant, the registrant shall so inform the department of health in writing within thirty days and give the name of another representative, in accordance with paragraph (B)(2) of this rule.

(3) The initial and renewal registration shall not be transferable and expires annually on the last day of December, unless earlier revoked. A registration may be renewed for an ensuing year by making application to the director in accordance with paragraph (B) of this rule. If a renewal application has been received on or prior to the last day of December, such application shall extend the period of validity of the current registration until a new complete registration is issued or the director denies a new registration under the provisions of division (B)(3) of section 3701.344 of the Revised Code, this chapter, and Chapter 119. of the Revised Code.

(D) Registration bonds.

(1) Registration bonds shall be executed in the name of the applicant, as principal, on a bond agreement form provided by the department and shall include a certificate from the superintendent of insurance demonstrating that the surety company is authorized to operate a surety business in this state.

(2) If the registration bond supporting the registration is canceled, the registrant shall submit a new registration bond to the department within ten days, in accordance with the requirements of this rule. The surety company shall give ninety days written notice to the department of health prior to the effective date of cancellation.

(3) No private water systems contractor shall perform work on a private water system without a valid registration bond. In the event that the registration bond is canceled, the private water systems contractor shall not perform work on a private water system until a valid replacement bond has been provided to the department.

(4) For the purposes of this rule "aggrieved party" means the private water system owner or their authorized agent who contracts for a private water system and brings a claim against a private water systems contractor that the system is not installed, altered, repaired, serviced, or abandoned in substantial compliance with the provisions of this chapter.

(5) As a condition precedent to making a claim on a registration bond when an aggrieved party alleges that violations of this chapter exist for a private water system:

(a) The aggrieved party shall make written contact with the private water systems contractor who performed the work on the private water system and the board of health having jurisdiction in the health district where the private water system is located regarding the nature of the alleged violation and intention to file a bond claim if the violations are not corrected.

(b) The board of health having jurisdiction shall investigate the complaint and determine if a violation of this chapter has occurred. The findings of this investigation shall be communicated in writing to the aggrieved party and the private water systems contractor.

(c) If the board of health determines that no violation of this chapter has occurred and the aggrieved party disagrees, the aggrieved party shall submit in writing to the director a narrative of the alleged violations of Chapter 3701-28 of the Administrative Code upon which the person desires to make a bond claim and shall include a copy of the investigative findings by the board of health.

(d) If the board of health determines a violation of this chapter has occurred, the board of health shall consult with the aggrieved party and the private water systems contractor on the corrective actions necessary to resolve the violation. After consultation with the board of health and the private water systems contractor on the plan for correction of the violation, the aggrieved party shall provide the private water systems contractor an opportunity to correct the alleged violation, unless otherwise authorized by the director. If the violation identified by the board of health is not corrected by the private water systems contractor, the aggrieved party shall give written notification to the director stating their intention to file a bond claim, the alleged violation(s) of Chapter 3701-28 of the Administrative Code and shall include a copy of the investigative findings and orders to correct by the board of health.

(e) If the board of health identifies a violation and the private water systems contractor has agreed to perform the corrective actions required to correct the alleged violation, but the aggrieved party denies the private water systems contractor access to the private water system the board of health or the private water systems contractor or both shall notify the director of the denial of access in writing, and shall include documentation of the investigation, corrective actions planned, and the denial of access.

(f) When the director receives written notification regarding an aggrieved party denying a private water systems contractor access to the private water system to perform the actions necessary to correct the alleged violation(s), the director shall send a copy of the written notification to the aggrieved party, the board of health, and the private water systems contractor. The aggrieved party shall have thirty days to allow the contractor access to correct the alleged violation. The rights of the aggrieved party

to the bond shall be forfeited if the aggrieved party denies the private water systems contractor access to the private water system to perform actions necessary to correct violation(s).

(6) Making a claim on a registration bond:

(a) If the board of health determines that no violation of this chapter has occurred and the aggrieved party disagrees, or if the private water systems contractor fails to correct the violations within thirty days, the aggrieved party shall submit, in writing, to the director, a narrative of the alleged violations of Chapter 3701-28 of the Administrative Code upon which the person desires to make a bond claim and shall include a copy of the investigative findings and any notices of violation issued by the board of health.

(b) A copy of the narrative and supporting documents required in paragraph (D)(6)(a) of this rule shall be sent to the board of health and private water systems contractor by the director.

(c) The director, with the assistance of the board of health, shall investigate the validity of the allegation and review any written submission by any of the parties, and may consult with the aggrieved party, board of health, and the private water systems contractor. The director may request additional evidence from the aggrieved party, contractor, or board of health. Upon a party's request, and at the director's discretion, an informal meeting may be held with the director's designee, the aggrieved party, the private water systems contractor, other technical experts, or the board of health to further the investigation, work towards resolution, and correct the violation.

(d) If the director concludes that no rule violation exists, he shall so notify the aggrieved party, the board of health, and the private water systems contractor in writing. The director, if satisfied of the existence of a rule violation, shall notify in writing the aggrieved party and board of health of the rule violation and issue a notice of violation to the private water systems contractor and shall send a copy of this notice to the aggrieved party, board of health, and the surety company that sets forth the following:

(i) The nature of the violation;

(ii) The action required to correct the violation;

(iii) The date for completion of the corrective action; and

(iv) The date by which the private water systems contractor must respond with a corrective action plan.

(e) If a private water systems contractor fails to comply with the notice of violation issued pursuant to paragraph (D)(6)(d) of this rule within sixty days, the director shall notify the surety company, the aggrieved party, the board of health, and the private water systems contractor and shall:

(i) Set forth the violation; and

(ii) Inform the surety of its options in responding to the notice as set forth in paragraph (D)(6)(d) of this rule.

(f) Within thirty days from the date the surety company receives a notice under paragraph (D)(6)(d) of this rule the surety company shall notify the director that it will perform one of the following:

(i) Not correct the violation or violations resulting in the issuance of the order and shall make payment for the full amount of the bond to the aggrieved party;

(ii) Make payment to the aggrieved party in an amount equal to the purchase price of the private water system and any other activity necessary to bring the private water system into compliance with this chapter, including the sealing of a private water system, if necessary; or

(iii) Correct the violation(s), or pay the cost of correction within thirty days of receiving the notice and submit to the director a plan for performance of the work necessary to correct the violation(s). The rights of the aggrieved party to the bond shall be forfeited if the aggrieved party denies the bond company or its agents access to the private water system to perform actions necessary to correct the violation(s).

(g) The rights of the surety company to correct the violation(s) resulting in a notice issued under paragraph (D)(6)(f) of this rule shall be terminated and the director shall order the entire amount of the bond forfeited if the surety company fails to:

(i) Notify the director within thirty days of receipt of the notice that it will or will not correct the violation(s);

(ii) Submit a plan for completing the required work at the same time it notifies the director that it will perform or pay the cost of performing the required work; or

(iii) Commence, continue, or complete the required work in a manner and in accordance with this rule and the provisions of this chapter.

(7) The notification required in paragraph (D)(6)(a) of this rule must be made within two years from the date the work on the private water system, or the component thereof, is completed. The bond claim shall be withdrawn due to lack of response within sixty days from the aggrieved party after notification from the department, the private water systems contractor or the surety on the proposed corrections of the violation or violations.

(8) The surety company shall give written notice to the director within thirty days of payment on a claim against a registration bond. The notice shall specify the name of the registered contractor, the name of the aggrieved party, the amount of the claim, and the date and manner in which the claim was paid.

(E) Annually the director shall publish a list of the names and addresses of all persons holding registrations under this chapter and shall provide a copy of the list to any person upon request.

(F) Every registrant shall maintain and submit to the board of health and the department such complete and accurate records as may be required for determining compliance with all applicable rules of this chapter.

(G) Suspension, revocation, and denial of registration.

(1) The director may suspend, revoke, or deny any registration of a private water systems contractor for violation of the requirements of this chapter.

(2) Grounds for suspension, revocation, or denial of a private water systems contractor's registration shall include, but not be limited to:

(a) A material misstatement or falsification of facts in the private water systems contractor's application

for a registration or obtaining a registration through fraud or misrepresentation;

(b) A material misstatement or falsification of facts on a private water systems permit, completion form, well log, or other form required by the department;

(c) A violation of the conditions of the private water systems contractor's registration;

(d) A failure to submit forms or well logs in accordance with rule 3701-28-03 of the Administrative Code;

(e) A violation of any applicable rule of this chapter;

(f) Failure to maintain a surety bond as required under this rule;

(g) Conviction in any criminal proceeding or failure to comply with a judgment or order that is issued by the court in any civil proceeding in connection with a private water system;

(h) Aiding or abetting an unregistered person to evade the requirements of division (B)(3) of section 3701.344 of the Revised Code and this rule, allowing one's registration to be used by an unregistered person, or acting as an agent, partner or associate of an unregistered person with the intent to evade the provisions of this chapter;

(i) A demonstrated incompetency to act in the business or businesses for which a registration is held; or

(j) Having more than one bond claim within a three year period where the director determined that there were violations of this chapter as specified in the written notice of violation issued under paragraph (D)(4)(c) of this rule, and that damages did occur.

(3) Procedures for the revocation, suspension, or denial of a registration by the director shall be in accordance with Chapter 119. of the Revised Code. Pursuant to that chapter, the private water systems contractor is entitled to a hearing upon request made within thirty days of the mailing of notice of the action on the registration. The date set for the hearing shall be within fifteen days, but not earlier than seven days, after the private water systems contractor has requested a hearing, unless otherwise postponed by the agency.

3701-28-19 Variance or waiver of certain provisions of this chapter.

(A) Any applicant who believes that a variance of this chapter is necessary shall make application in writing to the board of health or the department, specifically stating the proposed variance from the particular rule or rules and describing the system.

(B) The board of health or the department shall not grant any variance unless the applicant demonstrates that:

(1) There will be unusual and unnecessary hardship in complying with the rules;

(2) Contamination of the private water system or the water supply will not occur as a result of construction and operation of the system;

(3) The health of persons using water from the private water system will not be endangered thereby;

(4) No other technically feasible and economically reasonable means of obtaining water from the proposed type of water source exists; and

(5) If the property owner is not the party making application for the variance, there is documentation that the property owner is aware of the variance request and all implications that the variance entails.

(C) In the case of an emergency as determined by the board of health, the board of health may make a written request of the director to waive the fees under paragraph (I) of rule 3701-28-04 of the Administrative Code. The director may grant such waiver of the fee if such waiver is warranted.

(D) No variance or waiver shall be granted that will defeat the spirit and general intent of these rules, or otherwise be contrary to the public interest or adversely impact the public health. No variance or waiver shall be granted where prohibited by rule.

(E) The board of health shall maintain a list of all variances or waivers requested in a calendar year and shall provide to the department the name and address of the person granted a variance or waiver, reason for granting or denying the variance or waiver, and a copy of the variance or waiver. This information shall be provided to the department by the first day of April of each calendar year.