Chapter 15.55 WATER WELLS*

15.55.010 Purpose.

The purpose of this chapter is to ensure sources utilized for potable water within the Municipality of Anchorage are constructed and maintained in such a manner as to provide a safe supply of water for domestic use.

15.55.020 Scope.

This chapter applies to all sources of potable water used by single family residences within the municipality that are not licensed and/or regulated by the State of Alaska.

15.55.030 Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Abandoned well means a well whose use has been permanently discontinued and has not been properly decommissioned.

Animal containment area means any outdoor enclosure or group of enclosures containing one (1) or more horse, mule, cow, lama, or similar sized animal; four (4) or more dogs, sheep, goats, or swine, or similar sized animals; ten (10) or more rabbits, fowl, ferrets, or other domesticated small animals.

Approved tank manufacturer means a firm manufacturing tanks approved by the Development Services Department and holding a valid water and wastewater equipment manufacturer certificate issued by the same department.

Aquifer means a formation, group of formations or part of a formation that contains sufficient saturated permeable material to yield water to wells and springs.

Aquifer - Unconfined means a zone of water saturation where atmospheric pressure is freely communicated to the zone. Its upper limit is at atmospheric pressure and it has no upper confining layer.

Aquifer - Confined means a formation in which the groundwater is isolated from the

atmosphere, at the point of discharge, by impermeable geologic formations. Confined groundwater is generally subject to pressure greater than atmospheric and rises to a level above the upper limit of its aquifer.

Artesian well means a well in which the water from the confined source aquifer rises above the upper limit of the aquifer.

Bentonite means a montmorillinate aluminum silicate clay. Bentonite comes in the form of powder, granules, or chips.

Bentonite chips means ¼ inch to ¾ inch sized chips of bentonite approved by the NSF for the purpose of water well construction.

Bentonite granules means an 8 to 20 mesh size bentonite clay approved by the NSF for the purpose of water well construction.

Bentonite slurry means a high solids mixture of bentonite particles and water with a consistency of 18% to 22% solids as measured with a marsh funnel.

Casing means the pipe made of material herein specified or otherwise approved by the Development Services Department, installed in a well bore hole to prevent sidewall caving, to provide access to an aquifer, and provide protection from up-hole or surface contamination of the aquifer.

Certificate of On-Site Systems Approval means a written confirmation signed by an engineer and the Development Services Department certifying the on-site wastewater disposal system and/or well serving a single-family dwelling are functional and comply with all state and local regulations and codes. In the event of inconsistency among these regulations and codes, the most restrictive shall apply.

Certified groundwater professional means a groundwater professional certified by a nationally recognized organization.

Certified laboratory means a laboratory certified by the State of Alaska, 18 AAC 80.1100.

Certified pump installer means a person or firm holding a valid state contractor's license, business license, and a current pump installer's certificate issued by the Development Services Department.

Certified well driller means a person or firm holding a valid state contractors license, business license, and a current well driller's certificate issued by the Development Services Department.

Contaminant means any substance which, if introduced into a potable water source, would render the water unsafe for human or animal consumption.

Disinfection means a chemical or physical process utilized to eliminate pathogenic organisms from a potable water source or storage facility.

Domestic use means water used for residential and noncommercial use.

Drawdown means the distance between the static water level and the pumping water level in a well or an aquifer.

Drive shoe means a forged or tempered steel collar with a cutting edge, attached to the lower end of a casing string by threading or welding, to protect the bottom end of the casing as it is driven or otherwise forced into the bored hole.

Engineer means a professional civil engineer registered pursuant to Alaska Statute 8.08.

Flowing artesian well means a water well in which the water from the confined source aquifer flows naturally to the ground surface without benefit of mechanical lift equipment.

Groundwater means subsurface water permanently or seasonally occupying a zone of saturation.

Grout means a stable bentonite clay material that is NSF approved, in a slurry or granular form impervious to and capable of preventing the vertical movement or migration of water.

Hazardous substance means those substances which, because of quantity, concentration, or physical/chemical/infectious characteristics, may pose a threat to human health or to the environment when improperly treated, handled, stored and transported, and disposed of. Hazardous substances include those defined as hazardous under federal, state and municipal laws.

Holding tank means a watertight covered receptacle as required by AMC chapter 15.65 designed and built to receive and store domestic wastewater for disposal at another location.

Hydrogeologist means a certified professional geologist, licensed by the State of Alaska who practices groundwater science or a nationally certified groundwater professional.

Manure/animal excreta means solid waste from domesticated animals, and for the purposes of this chapter, shall also mean bedding or other materials contaminated by animal liquid or solid wastes.

Manure/animal excreta storage area means any area where such material is being stored temporarily or permanently or being composted.

NSF means National Sanitation Foundation.

On-site wastewater disposal system means any wastewater storage, treatment, or disposal system which serves a facility located on a lot which is not connected to a public sewer.

Out of service means has not been functional for ninety (90) or more consecutive days. An example of non-functional wells includes wells without pumps, electrical power or appurtenances (including a surface discharge point).

Outer annular space means the void space between the side wall of the drilled bore hole and the outside casing wall.

Permit means a written document issued by the Development Services Department permitting the construction and/or development of a subsurface potable water source.

Pitless adapter means a device attached to the well casing below ground level, constructed to permit the flow of water from the well casing.

Potable water means water which is satisfactory for drinking and culinary purposes.

Protective well radius means a prescribed horizontal distance between the well head and potential source of contaminants.

Public sewer means a sewage collection system operated by a public utility as defined in Alaska Statute 42.05.701.

Public water means a water distribution system which is operated by a public utility as defined in Alaska Statute 46.03.020.

Pump means a mechanical device used to recover water from a well or water collection system.

Recovery means the ability of the water in a well to return to its static level after being drawn down during a period of pumping.

Sanitary well seal means a mechanical seal installed on the top of the well which has been approved by the Development Services Department.

Screen means a filtering device used to keep sediment from entering a water well.

Sealing or *sealed* means the act of providing a water tight seal between the casing and the well bore by means of an impervious material.

Septic disposal field means an absorption bed, deep or shallow absorption trench, seepage pit or mound system.

Septic tank means the water tight receptacle designed to receive domestic wastewater and

allow the clarified liquids to be discharged into a subsurface soil absorption system.

Setback means distance from a water well to a defined object, point or location.

Static water level means the water level in a well has not been affected by withdrawal of groundwater.

Stick up means the portion of a well's casing extending above the surface of the ground.

Surface water means any persistent natural or man-made source of water, which is not directly attributable to a single rainfall or snowmelt event. Surface waters include all lakes, ponds, streams, springs, intermittent or seasonal flows, natural and artificial bodies of water and all of the water of the State of Alaska as defined in Alaska Statute 5.25.100(5).

Wastewater means water containing human excreta, food waste, wash water and other wastes commonly discharged into a water-carried sewage disposal system, and such diluting water as may have entered the waste disposal system. Wastewater does not mean liquids containing hazardous wastes as defined by federal, state or municipal law.

Water-carried sewage disposal system means a wastewater disposal system through which wastes are conveyed with the aid of water.

Water producing zone means a subsurface zone producing water and separated from another water bearing layer by at least five (5) feet of silt or clay.

Water storage facilities means and shall include all water storage tank(s), pumps and piping used in the storage of potable water.

Water table means a groundwater surface within an aquifer where pressure is equal to the atmosphere.

Water well means a bored, drilled, or driven excavation utilized for the purpose of extracting groundwater from an aquifer for domestic use.

Well cap means a mechanical cover installed on the top of a well casing which may or may not be water tight.

Well decommissioning means the process or procedure by which production from a well has been discontinued and the well properly removed from service.

Well depth means the depth of the well as measured from ground surface.

Well drilling contractor means a certified well driller, as defined above.

Well log means a written report showing the property owner, location, and all pertinent

information and data relative to the drilling and completion of the well.

Well pit means an excavation, opening, shaft or hole surrounding a well.

Well rehabilitation means subsurface improvements designed to alter well yield or the physical characteristics of an existing well.

Well test means a test conducted by a licensed well driller, a certified pump installer, a hydrogeologist, or an engineer to determine the sustained producing capability of the well and the recovery rate of the well.

Well yield means the sustained producing rate of a well determined by a well test.

15.55.040 Prohibited actions.

A. No person shall cause or permit the construction of a surface or subsurface water source for domestic purposes without holding a valid permit issued by the Development Services Department in the name of the property owner for the specific property and construction proposed. The well drilling contractor shall have a copy of the valid permit at the site of the drilling operation.

B. No person shall cause or allow the placement of any refuse, trash, waste, or contaminated or hazardous substance into any existing or abandoned well or domestic water source.

C. The location of a well, on-site wastewater disposal system or subsurface drain, either separately or in combination with each other and other wells, on-site wastewater disposal systems or subsurface drains in the vicinity, shall not have the effect of prohibiting future residential use of an adjacent lot or parcel. The department may require an agreement and necessary easements with the owner of the affected property for the sharing of a well or other resolution of the problem. The agreement shall be recorded.

D. No person shall cause or allow the construction of a domestic water source violating the laws or regulations of the state or the municipality.

E. No person may cause the construction, installation or use of a cross connection between a domestic, active or decommissioned water well and a public water system.

F. No person shall allow a water supply well to remain out of service for more than ninety (90) days without permanently decommissioning the well.

G. No person shall allow the waste of water by free-flowing wells, whether by surface discharge or into the lower strata underground, without putting it to beneficial use. Flow shall be sealed to the satisfaction of the Development Services Department.

15.55.050 Permit for domestic water system.

A. *Permit to drill.* An application to drill a new or replacement well shall be submitted to the Development Services Department by the property owner or his/her authorized agent prior to the commencement of drilling operations.

1. A permit issued under the terms of this chapter shall only be applicable for

single family residential wells.

2. A permit for domestic water source shall not be issued if there is no existing or permitted on-site wastewater disposal system or connection to public sewer service for the property available, scheduled and approved. A variance may be issued for the purposes of groundwater exploration wells constructed in accordance with the standards of this chapter.

3. A permit for a domestic water system shall expire one (1) year from the date of issuance, but may be renewed for one (1) additional year at the current renewal fee.

B. *Application.* The application shall be on a form provided by the Development Services Department, and shall be signed by the property owner or property owner's agent attesting the well shall be sited, drilled and completed in accordance with standards and provisions in chapters 15.55 and 15.65 and State of Alaska, 18 AAC 80 and 72.

1. The applicant shall submit a site plan signed by the property owner or property owner's agent drawn on an 8 1/2 by 11 inch sheet (or larger if necessary to comply with this chapter) to a scale not smaller than one inch to fifty (50) feet. The site plan shall show the:

   a. Legal description of the lot or parcel;

   b. Location of the proposed well;

   c. Lot lines, roads, rights-of-way and easements on or adjacent to the lot;

   d. Location of all existing structures on the lot;

   e. Measured distance to all existing water supply wells within fifty (50) feet of the proposed well site and the location of all wells within two hundred (200) feet on the subject and adjacent properties;

   f. All applicable protective well radii; and

   g. The location or proposed location of all components shown in Table A-1, and areas containing hazardous waste or other potential pollutants within one hundred fifty (150) feet of the proposed well.

C. *Revocation, suspension and restriction of permits.* The director may revoke, suspend, or otherwise restrict a permit, issued under this chapter upon any of the following grounds:

1. Any false statements set forth in the application;

2. Any violation of the express terms or provisions of the permit;

3. The commission of any act or omission violating the requirements of chapter 15.55; or

4. Failure to comply with state and federal regulations.

15.55.055 Certificate of On-Site Systems Approval.

A. Prior to the transfer by gift, deed or contract of any ownership or use interest in a privately owned on-site water well, the transferor shall obtain a Certificate of On-Site Systems Approval from the Development Services Department.

1. The requirements of this subsection A. do not apply to transfers between spouses.

B. Upon request and subject to the provisions of this section, the Development Services Department may issue or deny the issuance of a Certificate of On-Site Systems Approval for any dwelling or site served by a privately owned well.

C. Where an on-site well does not conform to state and/or municipal laws, but no material health hazard is posed by postponing correction of the well's defects, the Development Services Department may issue a conditional Certificate of On-Site Systems Approval to extend the period of time for corrective action until weather conditions allow. This conditional certificate may be issued with conditions necessary to ensure the public health and safety are not endangered.

D. The Development Services Department shall issue a Certificate of On-Site Systems Approval if the department finds information provided by an engineer demonstrates the system for which the certificate is sought conforms to all applicable provisions of chapter 15.55, regulations promulgated hereunder and applicable state statutes and regulations in effect at the time of original installation or at the time of any subsequent modification and does not presently create a health hazard.

E. The Development Services Department may require a request for a Certificate of On-Site Systems Approval be on forms provided by the department.

F. All test procedures used to collect the information necessary to meet the requirements of this section shall be developed and modified jointly by the Department of Health and Human Services and the Development Services Department.

G. Before a Certificate of On-Site Systems Approval may be issued, drinking water from the well on the property shall be properly sampled and analyzed by a certified laboratory for levels of total coliform bacteria, other bacteria, arsenic and nitrate. The levels of total coliform and other bacteria shall conform to drinking water limits established in section 15.55.060K. For other contaminants, including arsenic and nitrate, the departments shall use current USEPA public drinking water standards as a guideline to trigger actions deemed necessary to protect the public health. If nitrates are present greater than 10.0 mg/l, the applicant shall comply with subsection H., below.

H. If sampling results from a well on a property requesting a Certificate of On-Site Systems Approval show the nitrate concentration in the well water is greater than 10.0 mg/l, the following steps shall be taken:

1. A visual inspection of the well bore, using a down hole camera, performed by a certified well driller or pump installer, or engineer shall be used to evaluate the integrity of the casing and the well is cased, without perforations, to the required depth.
2. An evaluation of the annular seal around the well casing shall be performed by a certified well driller, pump installer, or engineer in accordance with procedures established under subsection F. Fluorometric dye and water shall be introduced into a temporary basin dug into the ground surface surrounding the well casing stick up. Well water samples for laboratory analysis shall be collected for a minimum of forty-eight (48) hours after dye is introduced and analyzed by a certified laboratory for the presence of the dye. Presence of the dye within forty-eight (48) hours is

evidence of an inadequate annular seal around the well casing. The annular seal shall be deemed satisfactory if dye cannot be detected within the first forty-eight (48) hours of introduction.

3. If the annular seal around the casing is determined satisfactory through dye testing, the Development Services Department may issue a Certificate of On-Site Systems Approval provided the well is cased and un-perforated to a minimum depth of forty (40) feet and meets all other well code construction standards in place at the time the well was originally constructed. If the well does not meet the minimum forty (40) feet casing depth, at the time approval is requested from the Development Services Department, a Certificate of On-Site Systems Approval may be issued if the well is retrofitted with a pressure-grouted well liner installed to a minimum depth of forty (40) feet.
4. If water producing zones with greater than 10mg/l nitrates are found below the well casing and there are also other water producing zones with less than 10 mg/l nitrates, the well shall be retrofitted to eliminate cross connection between the water producing zones.
5. If the well casing or annular seal around the casing are determined to be inadequate or unsatisfactory, or if cross connections between water producing zones are found, the well shall be repaired or modified to meet current well construction standards outlined in section 15.55.060 or the well shall be decommissioned in accordance with section 15.55.060L. After the well is brought up to applicable standards, the Development Services Department may issue a Certificate of On-Site Systems Approval. The Development Services Department may require additional monitoring.
6. Upon completion of any rehabilitative well work, the temporary basin created around the well casing for the dye test shall be filled with a bentonite slurry and re-graded to meet the standards in section 15.55.060C.2. The well shall also be disinfected in accordance with section 15.55.060G.1. and retested for nitrates.

15.55.060 General standards for domestic wells.

A. *Prohibited wells.* Well pits are prohibited. The Development Services Department may, at its discretion, allow an existing well pit to remain in use if it is shown the pit provides adequate protection against flooding.

B. *Well location and minimum setbacks.* The location of a well shall be at a site readily accessible year round for testing, repair or maintenance purposes. The minimum separation requirements between wells and other specified facilities or areas shall be:

TABLE A-1

SEPARATION OF WELL FROM:	MINIMUM SEPARATION - DISTANCE IN FEET
Private sewer line	25
Curtain drain	25
Petroleum Hydrocarbon storage tank	25

Sewer trunk line	75
Any other source of potential contamination	75
Holding tank	75
Septic absorption field	100
Sewer manhole or cleanout	100
Septic tank	100
Animal containment areas	50
Manure/animal excreta storage areas	100

C. *Well drilling.* The commercial drilling of a well and subsequent rehabilitation or deepening operation shall be performed by a licensed well driller. Any drilling method used in the construction of a well shall meet the following requirements:

1. The well driller shall notify the Development Services Department of the proposed date of commencement of any drilling or rehabilitation or deepening or decommissioning operation prior to the start of operation.
2. The ground surface surrounding the well for at least ten (10) feet shall be sloped or contoured to allow surface water to drain away from the well.
3. The well driller shall exercise reasonable care during excavation or drilling operation to prevent contamination to any aquifer.
4. Organic drilling fluid may be used only if the fluid is approved for such use by the National Sanitation Foundation (NSF) or by an equivalent organization; these fluids are listed in NSF Standard 60 and NSF Standard 61 and in associated product listings described in these two standards.
5. Water used in the drilling process shall be obtained from a source providing potable water.
6. Water wells shall be drilled and cased with non-perforated pipe to a minimum depth of 40 feet, in unconsolidated materials and in bedrock. If bedrock is encountered at a depth greater than twenty (20) feet and less than forty (40) feet, then the casing shall extend a minimum of twenty (20) feet into the bedrock. Where it is necessary to case bedrock to meet these requirements, an oversized borehole shall be drilled from surface to the required depth into the bedrock. The resulting oversized borehole shall be grouted in accordance with section 15.55.060D.2.
7. A well completed in unconsolidated formations shall be constructed so water only enters the well from a single water producing zone.

D. *Well casing.* All casing shall be installed with NSF approved potable water materials in new or like new condition, free of pits or breaks. The following wall thickness shall be used, except all casing greater than the nominal size of six (6) inches shall have a wall thickness of at least 0.250 inches:

TABLE A-2

NOMINAL SIZE (INSIDE DIAMETER) (INCHES)	OUTSIDE DIAMETER (INCHES)	WALL THICKNESS (INCHES)
4	4.50	0.237

5	5.50	0.244
5.5	6.00	0.245
6.125 (6 1/8")	6.625 (6 5/8")	0.250

1. *Joints.* All casing joints shall be screw-coupled or welded and shall be water tight. If welded joints are used, the weld shall be at least as thick as the thickness of the well casing.
2. *Grouting.* Grouting the outer annular space is necessary to prevent shallow non-potable water or surface waters from entering into a potable water aquifer. All wells shall be grouted with bentonite slurry or granules as follows:
    a. From the pitless adapter level to at least ten (10) feet below the pitless adapter or, from the surface to a minimum twenty (20) feet below the surface;
    b. If bedrock is encountered as described in section 15.55.060C.6., the following grouting procedures shall be followed:
        i. The permanent well casing shall be grouted from the bottom of the borehole up using high solids bentonite slurry (minimum twenty percent (20%) solids content). The oversized bore shall be stabilized to eliminate caving and sloughing.
        ii. If the permanent casing is used as a tremie to place the grout by circulating from the up, a minimum one (1) inch annulus spacing from the bottom of the bore to surface shall be required.
        iii. If a temporary casing is used to stabilize the oversized bore, it shall be removed upon completion of grouting procedures.
3. *Pitless adapters.* Pitless adapters shall be installed by a certified pump installer, a certified well driller or by an excavator under the supervision of a certified pump installer or well driller. The burial depth and type of pitless adapter installed shall be recorded on the Pump Installation Log pursuant to section 15.55.060J. When installed, pitless adapters shall be one of the types approved by the Development Services Department.
4. *Well casing stick up.* All well casing shall extend a minimum of eighteen (18) inches above the finished grade, with the ground sloped to drain away from the casing.
5. *Well seal.* The top of the casing shall be closed with a sanitary well seal of a type approved by the Development Services Department.
6. *Drive shoe.* When the casing is driven or otherwise forced into the well bore, the bottom of the casing shall be protected from damage by the use of a drive shoe or mechanical device.
7. *Perforating or slotting.* Perforating or slotting of the casing utilized for the purpose of allowing water to enter the well from water producing zones encountered above the bottom of the casing shall not extend higher than forty (40) feet below the ground surface, unless it meets the requirements

of section 15.55.060C.6.

E. *Well Accessories*. The commercial installation of well accessories shall be performed by a certified well driller or certified pump installer.

F. *Minimum water well production and testing.* If the minimum sustained rate of production and recovery of a well is less than one hundred fifty (150) gallons per day per bedroom, as determined by a well yield test and/or recovery test, water storage facilities shall be installed.

1. *Well yield testing.* Upon completion of a well, a well yield test shall be performed by a certified well driller or pump installer or a certified civil engineer or a hydrogeologist. The well yield test shall be performed by bailing, air lifting or by pumping. The well yield test shall accurately determine the well's sustained productivity from test data including, but not limited to, static water level, pumping water level, drawdown rate, recovery rate or any other information useful in determining the sustained producing rate. If the well's initial sustained production rate is less than one (1.0) gallons per minute, the Development Services Department may require additional testing by alternative methods.

2. *Water Quality Testing*. Drinking water from the well shall be properly sampled and analyzed by a certified laboratory for levels of total coliform bacteria, other bacteria, arsenic and nitrate. The results of this sampling shall be submitted to the Development Services Department within thirty (30) days of the completion of the well. The levels of total coliform and other bacteria shall conform to drinking water limits established in section 15.55.060K. For other contaminants, including arsenic and nitrate, the departments shall use the current USEPA public drinking water standards as a guideline to trigger actions deemed necessary to protect the public health. Such actions shall be taken in partnership by the Department of Health and Human Services and the Development Services Department and may include, but are not limited to, issuing a health advisory, discontinuation of the use of water from the well for drinking water, decommissioning of the well, or requiring water treatment. The above departments may require other contaminants to be analyzed if deemed necessary for the protection of public health.

G. *Well disinfection.* Wells shall be disinfected as follows:

1. *New or deepened wells.* Immediately after completion of drilling or deepening wells, the well shall be disinfected. After the well is flushed of drill cuttings, apply a chlorine compound proportioned to provide a concentration of at least fifty (50) ppm as free chlorine to the entire volume of water in the well bore. The chlorine shall be introduced into the well in a manner which shall distribute it throughout the entire water depth. Allow the chlorinated water to remain in the well undisturbed for at least twenty-four (24) hours.

2. *Hydrofractured or redeveloped wells.* While redeveloping or hydrofracturing wells and when possible, a free chlorine residual in the well of at least five (5) ppm shall be maintained.

3. *Pump work.* On completion of pump installation work, a chlorine

compound proportioned to provide a concentration of at least fifty (50) ppm as free chlorine to the entire volume of water in the well bore shall be applied. After chlorine is introduced, water shall be circulated in the well so it reaches all parts of the pumping equipment, inside and out. The chlorinated water shall remain in the well for at least one (1) hour.

4. *Flushing.* After the required disinfection time has expired, the well shall be flushed of all chlorinated water before being placed in service.

H. *Well identification.* All wells shall be labeled with a durable form of construction information upon completion. The construction information source shall be secured to the well casing and contain the following information:

1. The name of the drilling contractor;
2. The date the well was completed;
3. The total depth;
4. The total depth of casing;
5. The location and type of well completion;
6. Static water level below the top of the casing;
7. Yield; and
8. Height of casing above finished grade.

I. *Well logs and as-built.* The certified well driller shall provide a well log to the Development Services Department within thirty (30) days of completion of the well. The well log shall include at least the following pertinent information:

1. The property owner's name;
2. The legal description and street address;
3. The method of drilling (rotary, cable tool, etc.);
4. A description, relative depth, and thickness of each soil stratum penetrated from the ground surface to the total depth;
5. The relative depth and thickness of each water bearing stratum (aquifer) penetrated;
6. The total depth drilled;
7. The length, diameter, wall thickness and type of casing used;
8. A description of the liner (if used) and the length and setting depth;
9. The depth and number of perforations, (if any) in the casing and/or liner;
10. The type and location of any screens used;
11. The static water level and drawdown level;
12. The well production test results including the method of testing;
13. The dates of commencement and completion of drilling operations;
14. The number and date of the well drilling permit issued by the Development Services Department;
15. The name and address of the certified well driller; and
16. A description of the method of disinfection process used upon completion of the well.

J. *Pump installation log*. The certified pump installer or well driller shall provide a pump installation log to the Development Services Department within thirty (30) days of completion of the installation of a pump into a water well.

1. The pump installation log shall include at least the following pertinent information:

a. The property owner's name;
b. The legal description and street address of the property;
c. The date of the pump installation;
d. The manufacturer's name, model and size of the pump installed;
e. The depth from top of casing that the pump is installed;
f. The number and date of the well drilling permit issued by the Development Services Department;
g. The name and address of the certified pump installer, or certified well driller or excavator; and
h. A description of the method of disinfection used.

K. *Water quality standards.* Water used for domestic purposes shall not contain concentrations exceeding the following ratios:
1. Total coliform bacteria - 0 colonies per 100 ml.
2. Other bacteria - 10 colonies per 100 ml.

L. *Well decommissioning.* Wells shall be decommissioned by a certified well driller or a certified pump installer in accordance with this subsection:
1. *Permanent decommissioning.* A well may be permanently decommissioned by one of the following methods:
a. Perforate the casing from the bottom to within five (5) feet of the land surface, remove the top five (5) feet, then pressure grout the entire length.
b. Withdraw the casing and fill the borehole with grout, or bentonite as the casing is being withdrawn.
c. Cut off the casing at a point two (2) feet below ground level and fill the casing with a bentonite slurry pumped from the bottom up or with bentonite chips poured in a bridge free manner. The top of the cut off casing shall then be sealed with a 0.25 inch thick (or thicker) plate firmly welded to the top of the casing.

15.55.070 General standards for potable water hauling and storage facilities.

A. When well productivity is less than the requirements of section 15.55.060E., water storage facilities shall be installed.
1. A permit to install water storage facilities shall be obtained from the Development Services Department prior to installation. The permit application shall include:
a. The legal description of the property;
b. An as-built site plan or proposed site plan meeting the requirements of subsection 15.55.050B.1. and including the location of the water storage facilities; and
c. The number of bedrooms served by the well and/or water storage facilities.

B. *Location of buried water storage facilities.* The location of buried water storage facilities shall be at a site readily accessible year round for testing, repair or maintenance purposes. The minimum separation requirement between buried water storage facilities and other specified facilities and areas shall be in accordance with Table A-1.

1. The ground surrounding the access of the storage tank shall be sloped or contoured to allow surface water to drain away.

C. *Water storage facility specifications.* Specifications and requirements for water storage tanks and facilities, for both interior and exterior applications are as follows:

1. Water storage tanks shall have National Sanitation Foundation (NSF) approval; or
2. Water storage tanks shall be designed by an engineer and manufactured by an approved tank manufacturer. Materials and coating used in construction shall be either U.S. Food and Drug Administration (FDA) or NSF approved food grade;
3. All components of water storage facilities shall comply with the latest adopted edition of the Uniform Plumbing Code, as amended where applicable; and
4. Water storage tanks shall have a minimum capacity of:
    a. One thousand (1,000) gallons for homes up to and including three (3) bedrooms without wells or having a well producing less than 150 gallons per day. Each bedroom above three (3) bedrooms shall add 250 gallons to the required capacity of the tank.
    b. Five hundred (500) gallons for homes with wells producing 150 gallons or more of water meeting the requirements of section 15.55.060K. per day but less than the requirement of section 15.55.060E.
5. An exterior water storage tank shall have a minimum of four (4) feet of cover, or insulated to protect from freezing. Tanks buried with less than two (2) feet of cover shall have calculations submitted by an engineer showing adequate measures have been taken to prevent the tank from freezing.
6. Access to water storage tanks shall be clearly and permanently marked "potable water."
7. Water delivery to water storage facilities shall be accomplished only by water haulers certified by the State of Alaska Department of Environmental Conservation (ADEC).
8. Homeowners may haul water to their own water storage facilities provided they obtain the water from a source approved by ADEC and use a tank approved by the Development Services Department.

15.55.080 Well driller and pump installer certification.

A. It shall be unlawful for any person or company to engage in the business of drilling or deepening a water well for domestic use unless the person or company holds a well driller's certificate issued by the Development Services Department.

B. It shall be unlawful for a person or company to engage in the business of installing, removing, or repairing a water well pump, or engage in any other subsurface activity on a water well for domestic use unless the person or company holds a valid pump installer certificate issued by the Development Services Department.

C. A well driller's or pump installer's certificate shall be valid for a period of one (1) calendar year and shall be renewed each subsequent year thereafter.

1. A certificate shall be issued by the Development Services Department annually only when the well driller or pump installer has completed a training class conducted by the department within the past twenty-four (24) months.
2. The certificate may be revoked by the Development Services Department if the certificate holder is found guilty of or pleads guilty to an offense under this chapter. The period of revocation shall be according to the following schedule:
    a. One offense within the previous five (5) years shall result in a revocation of the certificate of one (1) month.
    b. Two (2) offenses within the previous five (5) years shall result in a revocation of the certificate of two (2) months.
    c. Three (3) offenses within the previous five (5) years shall result in a revocation of the certificate of six (6) months.
    d. More than three (3) offenses within the previous five (5) years shall result in permanent revocation of the certificate.