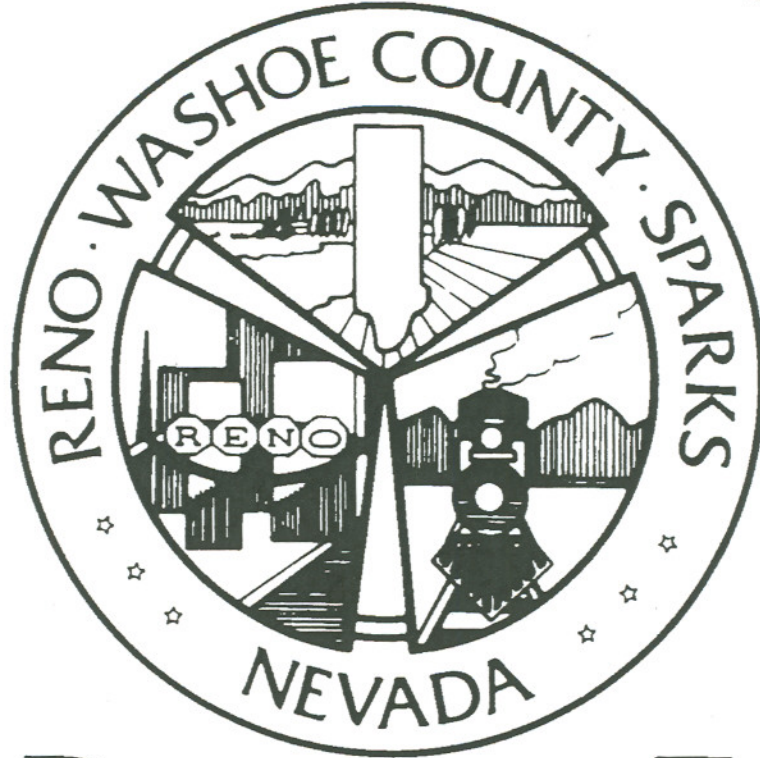


DISTRICT HEALTH



DEPARTMENT

DISTRICT BOARD OF HEALTH REGULATIONS

GOVERNING WELL CONSTRUCTION

REVISION APPROVED JANUARY 26, 2006

BY THE WASHOE COUNTY DISTRICT BOARD OF HEALTH

FILED

2006 MAR 14 PM 2:06

WASHOE COUNTY CLERK
BY *[Signature]*
DEPUTY

Resolution

Well and Water System Construction Regulations

WHEREAS, the Washoe County District Board of Health has been established pursuant to NRS 439.370 et. seq. and vested thereby with jurisdiction over all public health matters within the geographic boundaries of Washoe County, Nevada; and

WHEREAS, NRS 439.410 permits local authorities to adopt, amend and enforce reasonable rules and regulations for the sanitary protection of water and sewage disposal; and

WHEREAS, the State Engineer has advised that the adoption of comparable or more stringent regulations to the State Regulations Governing Well and Water System Construction by said District Board of Health is desirable; and

WHEREAS, the Washoe County District Board of Health deems it advisable to adopt regulations governing permits, construction, and installation of wells and water systems within the Washoe County Health District;

NOW, THEREFORE, BE IT RESOLVED that the Washoe County District Board of Health does hereby adopt the following regulations governing well construction within the Washoe County Health District; and the Washoe County District Board of Health does hereby request approval of said regulation by the Nevada State Board of Health pursuant to the authority vested in said Board by Chapter 439 of the Nevada Revised Statutes.

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GENERAL PROVISIONS

These regulations provide minimum requirements to be followed by any person when drilling and plugging specific kinds of wells. A well construction permit is required to drill a well for consumptive use or monitoring wells. These requirements are primarily promulgated to protect the quantity and quality of the waters of this county from waste and contamination, and to provide public protection by enforcing proper construction and plugging of wells.

SECTION 010

DEFINITIONS

As used in this regulation, unless the context otherwise requires, the words and terms defined in Sections 010.005 through 110.005 inclusive, have the meanings ascribed to them in those sections.

010.005 ABANDON

To discontinue the use of a well or well bore or to leave the well or well bore in such a state of disrepair that to use it would be impracticable, may result in contamination of groundwater or may otherwise pose a hazard to the health or safety of the general public. A public water supply well is considered abandoned if the well has not been sampled for the required water quality contaminants as required under the Federal Safe Drinking Water Act and/or the State of Nevada Drinking Water Standards NAC 445A.656, 445A.657 and 445A.682 inclusive.

010.010 ACCESS PORT

An opening in the top of a well casing in the form of a tapped hole and plug or a capped pipe welded on the casing to permit entry of a device to measure the water level of the well.

010.011 AGGRIEVED PARTY

Any person who has been adversely affected by any action taken pursuant to these regulations.

010.020 ANNULAR SPACE

The space between two cylindrical objects, one of which surrounds the other, such as the space between the walls of the well bore and the casing.

010.010 APPROVED

Approved in writing by the Health Authority.

010.025 AQUIFER

A geological formation or structure that stores or transmits water, or both.

010.030 ARTESIAN WELL

A well tapping an aquifer underlying an impervious material in which the static water level in the well stands above where it is first encountered in the aquifer.

010.035 BENTONITE GROUT

A product that is specifically designed to seal and plug wells and well bores and:

1. Consists of not more than 87.9 percent water and not less than 12.1 percent Bentonite by weight of water;
2. Has the ability to gel;
3. Does not separate into water and solid materials after it gels;
4. Has hydraulic conductivity or permeability values of 10^{-7} centimeters per second or less; and
5. Has a fluid weight of not less than 9 pounds per gallon.

010.040 BUILDING SEWER

That part of the drainage system, which receives sewage discharged from the building drain and conveys it to an on-site sewage disposal system or other approved point of discharge.

010.045 BIT

The cutting tool attached to the bottom of the drill stem.

010.050 BOARD

The Washoe County District Board of Health.

010.055 BOREHOLE

A penetration in the ground that is deeper than the longest dimension of its opening at the surface and is made to obtain geologic, hydrologic, geophysical or geotechnical information, to obtain information relating to engineering or for any other purpose other than for use as a well.

010.060 BRIDGE

An obstruction in the well bore or annular space of a well bore or well caused when the walls of the well bore collapse or when materials are jammed or wedged into the well bore or annular space.

010.065 CASING

The conduit required to prevent waste and contamination of the ground water and to hold the formation open during the construction or use of the well.

010.070 CEMENT GROUT

A mixture of Portland cement, sand and water, which contains at least seven bags of cement per cubic yard and not more than 7 gallons of clean water for each bag of cement (1 cubic foot or 94 pounds).

010.075 CONCRETE GROUT

A mixture of Portland cement, sand, ¼ inch minus aggregate and water which contains at least five bags of cement per cubic yard of concrete and not more than 7 gallons of clean water per bag of cement (1 cubic foot or 94 pounds).

010.080 CONDUCTOR CASING

The temporary or permanent casing used in the upper portion of the well bore to prevent collapse of the formation during the construction of the well or to conduct the gravel pack to the perforated or screened areas in the casing.

010.085 CONTAMINANT

Any chemical, mineral, organic material, live organism, radioactive material or heated or cooled water that will adversely affect the quality of groundwater.

010.090 CONTAMINATION

The impairment of water quality by the introduction of contaminants into the groundwater.

010.095 DIVISION

The Division of Water Resources of the State Department of Conservation and Natural Resources.

010.100 DOMESTIC USE

Water used for culinary and household purposes, in a single-family dwelling, the watering of a family garden, lawn and the watering of domestic animals.

010.105 DOMESTIC WELL

A well used for culinary and household purposes, in a single-family dwelling, the watering of a family garden, lawn and the watering of domestic animals and the draught does not exceed a daily maximum of 1,800 gallons.

010.110 DRILL PIPE

A special pipe used during the drilling process to transmit rotation from the rotating mechanism to the bit. The pipe also transmits weight to the bit and conveys air or fluid, which removes cuttings from the hole and cools the bit.

010.115 DRILL RIG

Any power driven percussion, rotary, boring, coring, digging, jetting, or auguring machine used in the construction of a well or well bore.

010.120 DRILLING FLUID

A water or air based fluid used in the water well or well bore drilling operation to remove cuttings from the hole, to clean and cool the bit, to reduce friction between the drill string and the sides of the hole, and to seal the well bore walls.

010.125 DRIVE POINT WELL

A temporary monitoring well constructed by driving a drive point attached to the end of a section of pipe into the ground for the purpose of obtaining geotechnical or environmental information. The term is synonymous with a push point well.

010.130 EXPLORATORY WELL

A well constructed pursuant to paragraph (a) of subsection 2. of NRS 534.050 to determine the availability of water or whether an aquifer is capable of transmitting water to a well.

010.135 GRAVEL PACK

Clean well rounded rock or suitable packing material placed in the annular space around the well casing to provide temporary or long term support for the well bore.

010.140 GROUND WATER

Water below the surface of the land, which is in the zone of saturation.

010.145 GROUTING

The operation by which grout is placed between the casing and the sides of the well bore or during plugging and sealing of wells or well bores. This secures the casing in place and excludes water and other fluids from the well bore.

010.150 HEALTH AUTHORITY

The Department, the District Board of Health and its officers and agents.

010.155 JETTED WATER WELL

A well in which the excavation of the well bore is done primarily by using a high-velocity jet of liquid or gas.

010.160 MONITORING WELL

Any well that is constructed to evaluate, observe or determine the quality, quantity, temperature, pressure or other characteristic of groundwater or an aquifer. The term includes an observation well, piezometer, drive point well or vapor extraction well.

010.165 DRAINAGE CHANNEL

Includes canyons, swales washes, or depressions over and/or through which storm waters sometimes flow.

010.170 NEAT CEMENT

A mixture of:

1. Clean water and cement in a ratio of not more than 5.2 gallons of water per bag of Portland cement (1 cubic foot or 94 pounds); or
2. Clean water, cement and sodium Bentonite in a ratio of not more than 7.8 gallons of water per 3.76 pounds of sodium Bentonite by dry weight and one bag of Portland cement (1 cubic foot or 94 pounds).

010.175 NOMINAL SIZE

The manufactured commercial designation of the diameter of a casing. An example would be casing with an outside diameter of 12 $\frac{3}{4}$ inches, which may be nominally 12-inch casing by manufactured commercial designation.

010.180 OBSERVATION WELL

A well bore in which a temporary casing has been set and which is used to observe, test and measure the elevation of the water table, the pressure variations within an aquifer and the movement of contaminants inside or outside a zone of saturation.

010.185 PIEZOMETER

A well that is constructed to measure water pressure or soil moisture tensions at one or more discrete intervals

010.190 PITLESS ADAPTER

A commercially manufactured device designed for attachment to openings through the casing of a water well that permits water service pipes to pass through the wall or an extension of a casing and prevents the entry of contaminants into the well or water supply.

010.195 PLUG

The procedure in which a well or well bore is sealed and secured after it is abandoned.

010.200 PRIVATE WATER SYSTEM

A well and water system that is not a public water system and has from two (2) to fourteen service connections.

010.205 PRIVATE WATER WELL

A well that supplies water to a private water system.

010.210 PUBLIC SURVEY

The description of the location of land using the survey system of the United States Government and includes the 40-acre subdivision within a quarter-quarter section, quarter section, section, township and range.

010.215 PUBLIC WATER SYSTEM

A well and water system which serves at least fifteen (15) service connections or twenty-five (25) people at least sixty (60) days a year.

010.220 PUBLIC WATER WELL

A well that supplies water to a public water system.

010.225 PUMPING TEST

A staged or constant discharge flow of a well that is conducted to determine aquifer or well characteristics.

010.230 RECONDITIONING

The deepening, reaming, casing, recasing, perforating, reperforating, installing of liner pipe, packers and seals or any other significant change in the design or construction of a water well.

010.235 SEAL

The watertight seal established in a well bore or the annular space between the well casings or a well casing and the well bore to prevent the inflow or vertical movement of surface water or shallow groundwater, or to prevent the outflow or vertical movement of water under artesian pressures. The term includes a sanitary seal.

010.240 SEPTIC TANK

A watertight, covered receptacle designed and constructed to receive the discharge of sewage from a building sewer, separate the solids from the liquid, digest the organic matter, store digested solids through a period of detention, and allow the clarified liquids to discharge for final disposal.

010.245 SODIUM BENTONITE

Colloidal clay that:

1. Consists primarily of the mineral montmorillonite;
2. Has the ability to swell; and
3. May be mixed with water to form Bentonite grout.

010.250 STATIC WATER LEVEL

The stabilized level or elevation of the surface of the water in a well or well bore that is not being pumped and is not affected by the pumping of other wells or well bores.

010.255 SURFACE PAD

A formation of concrete or cement grout with a diameter of not less than 1 foot and a thickness of not less than 3 ½ inches which is set around a monitoring well at a slope to ensure that water flows away from the well.

010.260 TENSILE STRENGTH

The greatest longitudinal stress a substance can bear without tearing.

010.265 TREMIE PIPE

A device, usually a small diameter pipe, that carries grouting materials to the bottom of the hole and which allows pressure grouting from the bottom up without introduction of appreciable air pockets.

010.270 VAPOR EXTRACTION WELL

Any well constructed to remove vapors that may contaminate the groundwater.

010.275 VARIANCE

A written agreement issued by the District Board of Health exempting the property owner or responsible person from specific law or regulation requirements.

010.280 WASTE

Has the meaning ascribed to it in NRS 534.0165.

010.285 WATERCOURSE

A body of water, running or static, including but not limited to creeks, rivers, ponds, lakes, perennial streams, lined or unlined reservoirs, lined or unlined canals, irrigation ditches and diversions, and subdrains.

010.290 WATER TABLE

The upper surface of an unconfined aquifer at atmospheric pressure.

010.295 WELL

A penetration in the ground made for the purpose of measuring, testing or sampling the underground strata or producing groundwater. The term includes water well, monitoring well and exploratory well, but does not include geothermal, oil, gas wells or boreholes.

010.300 WELL BORE

A cylindrical hole made in the construction or drilling of a well.

010.305 WELL CONSTRUCTION PERMIT

The written approval from the Health Authority to drill, construct, recondition, or plug a well.

010.315 WELL DRILLER

Any person who drills a well or wells, for compensation or otherwise.

010.320 WELL DRILLING AND WELL CONSTRUCTION

Well drilling or well construction are synonymous, and mean drilling or boring new wells, placing casing in wells, cleaning and repairing existing wells, cementing wells, plugging and doing all other things normally associated with the construction or reconditioning of wells.

SECTION 020

**LICENSES AND WELL CONSTRUCTION PERMIT
REQUIREMENTS**

020.005 The owner/operator of the well drilling company and the licensed well driller on-site is responsible to ensure the drilling of the well complies with the provisions of these regulations, variance conditions, the terms and conditions of any permit waiver or order issued by the state engineer; and the requirements of all other federal state and local agencies which have jurisdiction over the land on which the well is to be drilled. If a licensed well driller has specific knowledge of improper well construction or plugging of a well, whether constructed by another licensed well driller or by any other person, he shall report that information to the Health Authority and the Division at the earliest possible date.

- 020.010** A well driller before working in the Health District must be currently licensed by the Division and must possess that license on his person at all times while on the work site.
- 020.015** The owner/operator of the well drilling company must have a valid business license and a State Contractor's license before working in the Health District.
- 020.020** Prior to any well construction, a Well Construction Permit must be obtained from the Health Authority to drill, construct, alter, replace, recondition, or plug a well.
- 020.025** A fee shall be charged for the issuance of a construction permit in accordance with the current fee schedule adopted by the District Board.
- 020.030** The owner of the property on which a well is to be drilled, must obtain a well construction permit from the health authority prior to any well construction on the well site. A well driller or the owner's agent may act on behalf of the property owner in obtaining a well construction permit, but the property owner shall be ultimately responsible for obtaining the well construction permit.
- 020.035** The application for a permit must include:
1. The name, address and current daytime phone number of the applicant.
 2. The Assessor's Parcel number of the property, which is the subject of the permit.
 3. The Well Construction Permit fee as determined by the current schedule of permit fees and service charges adopted by the District Board of Health.
 4. The proposed use of the well.

5. A statement indicating whether or not the property is located within a public water system service area and the name of the public water system.
6. If a waiver is required as per NRS 533 and 534 a copy of the waiver must be submitted with the well construction permit application. The application must include any permit conditions, waivers or orders issued by the Division.
7. Name of the Drilling Company and the Contractor license number.
8. Two copies of an approved plot plan.

020.040 The Plot Plan must be a minimum of 18" x 24" and a maximum of 24" x 36". The scale for properties under 10 acres shall be in the range of 1 inch = 10 feet to 1 inch = 40 feet. The scale for properties larger than 10 acres shall be in the range of 1 inch = 50 feet to 1 inch = 100 feet. The plot plan shall be drawn to scale and includes the following information.

1. The information contained in Subsections 1. and 2. above.
2. The direction of North.
3. Vicinity map.
4. The lot dimensions and total lot area.
5. The location of roadways, easements, potential sources of contamination, areas subject to vehicular traffic, material storage or large animal habitation.

6. The location of any well, on-site sewage disposal system, community sewage collection or disposal system within 100 feet of the subject property if the permit is for a domestic well or 200 feet of the subject property for a public water well. The locations shall be shown with dimensions to the two closest property lines. If none, so indicate.
7. The location of all existing or proposed on-site sewage disposal system components, including a delineated area for future replacement of disposal trench (es). The location shall be shown with dimensions to the two closest property lines.
8. The location of any available public water system. If none, so indicate.
9. The location of existing or proposed water supply lines from the well to the place of use.
10. A diagram of all existing or proposed structures on the property.
11. A diagram of all existing or proposed drainage improvements.
12. The location and description of any watercourse and/or drainage channel within 100 feet of the property. If none, so indicate.
13. The location of the well shall be shown with dimensions to the two closest property lines.
14. The boundaries of the 100 year flood plain within 100 feet of the property. If none so indicate.

15. Indicate in writing if any surface water rivers, lakes, perennial streams, unlined reservoirs or unlined canals are within ¼ mile of the well location.

020.045 Permit applications to plug a well are only required to include items 1. through 3. 6. and 7.in Section 020.035 and items 1 through 4, 10 and 13 in Section 020.040. If the property is connecting to a public water system, then the plot plan shall include the location of all existing or proposed on-site sewage disposal system components, including a delineated area for future replacement of disposal trench (es) and the location of the proposed water line from the water meter to the building. The locations shall be shown with dimensions to the two closest property lines

020.050 If a water well is used as a source of water for a public water system, the water well must comply with:

1. The provisions of [NAC 445A 6669 to 445A.66715 and 445A.66855 to 445A.6693](#), inclusive. A fee shall be charged for the issuance of a construction permit for a water project in accordance with the current fee schedule adopted by the District Board.
2. All of the provisions of *American Water Works Association Standard A100* that do not conflict with any of the provisions described in subsection 1; and
3. All of the provisions of [chapter 534](#) of NAC that do not conflict with any of the provisions described in subsections 1 and 2.

020.055 If the well construction permit application does not contain the above information, it is considered incomplete and will be rejected.

- 020.060** A Well Construction Permit shall be denied if the Health Authority determines that the proposed construction will not comply with these regulations or if the well location is within the service territory of an available public water system. A construction permit from the Health Authority is not required for the normal maintenance or the replacement of the well pump or water lines.
- 020.065** Once the well construction permit has been approved, no changes or deviations to the approved plot plan shall be allowed without prior written authorization from the Health Authority. Once approved, the well construction permit is valid for a period of eighteen of (18) months. All existing approved permits on file will be valid for a period of (18) months from the effective date of these regulations.
- 020.070** The well driller must keep a copy of the approved well construction permit, plot plan and any other special conditions or waivers issued for that well construction project on the work site at all times during well construction.
- 020.075** A domestic water well may be drilled to replace an existing well. The existing well must be plugged within 30 days of drilling the replacement well. If continued use will be made of the existing well, a permit or waiver from the Division must be issued for the replacement well before the Health Authority approves any well construction permit. When a water right permit is required, written approval from the Division must be submitted with the well construction permit application.
- 020.080** If a property is connected to an approved public water system then the existing well must be plugged within 30 days of completing the connection.
- 020.085** Water may not be diverted from more than one well for domestic use in one single-family residence.

- 020.090** A well may be drilled for domestic use if not more than 1,800 gallons of water per day is diverted from the well for use by a single family household including a residence with a lawn, garden and domestic animals.
- 020.095** If water service is available from an entity such as a public utility, a water district or a municipality presently engaged in furnishing water to the inhabitants of the area, a domestic well can not be drilled, deepened, reconditioned or replaced.
- 020.100** A permit from the Division must be submitted with the well construction permit application if:
1. More than 1,800 gallons of water per day are diverted from a water well; or
 2. Water is diverted from the well for more than on single family dwelling.

SECTION 030

Well Inspections and Reports

- 030.005** The Health Authority may inspect any well construction site, any well drilling equipment, appurtenances and well construction materials to determine compliance with these regulations.
- 030.010** Upon demand of the health authority representative, the well driller shall provide personal photo identification, any permits, plans, licenses, waivers, variances or other documentation pertaining to the well construction operation.

- 030.015** Any person who refuses entry or access to any property, premise or place where a well construction operation is being conducted, or any person who obstructs, hampers, delays or interferes with

any inspection of such operation by the health authority is guilty of a misdemeanor.

- 030.020** Identification of drill rig. The name and address of the head drilling contractor, drilling the well, must be conspicuously displayed in legible letters at least 3 inches high on the drill rig operated or owned by that contractor. The identification must be on the drill rig before the rig is positioned at any drill site or over any well.
- 030.025** The well driller must give the Health Authority at least 24 hours or one full working day, whichever is greater, notice prior to the start of the drilling, plugging or sealing operation. This may be done in person or by phone and the well driller must provide the well construction permit number, drilling location by address and assessors parcel number, drilling company name, licensed driller's name and the date and time to begin drilling. The Health Authority may at its discretion, require a four (4) hour prior notice to the placement of the sanitary seal.
- 030.030** The well driller cannot or does not begin the well drilling as indicated or will not be ready for inspection at the indicated time and date, the well driller shall, as soon as possible, notify the Health Authority of the cancellation. The Health Authority may charge a re-inspection fee each time the well driller fails to notify the Health Authority of the cancellation and a Health Authority official has gone to the job site to perform an inspection. The well driller may also be charged a re-inspection fee if he makes a late notification of cancellation and a Health Authority official has already gone to the job site.
- 030.035** A well driller licensed by the Division must be present at the well drill site at all times whenever the drilling rig is in operation. If the

licensed driller leaves the drill site, the drilling operation must be shut down until a licensed driller returns to the drill site.

030.040 Before leaving any well construction site unattended, the well driller shall take precautions and be responsible for securing the well bore and drilling fluid pit to prevent aquifer contamination and to protect human and animal safety concerns.

030.045 The well driller shall make every attempt to prevent ground and surface water contamination on the work site. In the event of accidental release of any solid waste, liquid waste, regulated substance or hazardous material, the well driller must immediately notify the Health Authority. The well driller must clean-up, remove, and properly dispose of the material within the time limits set by the Health Authority in accordance with Washoe County District Board of Health Regulations Governing Solid Waste Management.

030.050 Whenever any violation occurs to any provision of these regulations, the Health Authority may issue a Stop Work Order to the well driller on site, or by posting it in a conspicuous place on the well rig or work site. The Stop Work Order must specify the violations.

030.055 Upon receipt of the Stop Work Order, the well driller must immediately stop all well drilling activities and begin shutting down the drilling operation and securing the well bore. The well driller shall not resume drilling activities until the Health Authority representative who issued it, or their supervisor has rescinded the stop work order. It shall be unlawful for any person to continue drilling activities, or to remove the posted Stop Work Order without prior authorization from the Health Authority.

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030.060 After notification to the responsible person by the Health Authority of any violations to these regulations, It shall be unlawful for that person to refuse or fail to comply to correct these violations within the time limits set in that notice unless a time extension is granted by the Health Authority official who issued the original notice or their supervisor.

030.065 Prior to final inspection by the Health Authority, the well driller shall submit a copy of the completed State Well Driller's Report to the Health Authority. This must be submitted no later than 30 days after the well drilling rig leaves the well construction site. The well construction shall not be considered complete in accordance with these regulations until the final inspection has been conducted and the Health Authority tags the well.

030.070 The Well Driller's Report must contain the following information:

1. The complete name and address of the person for whom the work is being performed.
2. The well construction permit number.
3. The waiver number or State Engineer's permit number, if applicable.
4. The location of the well, including:
5. A description of its location by public survey.
6. The address of the property, the name of the subdivision and the county assessor's parcel number.
7. The temperature of the water. The temperature of the water may be described as cold, warm or hot.
8. A measurement of the water flow and any pumping test or development data must be given.
9. The depth of the sanitary seal.
10. An accurate identification of the water-bearing formations.

11. An accurate description of perforation in the casing must be set forth in the section of the Well Driller's Report that contains a record of the well casing.
12. After the water well is completed, the static water level must be accurately measured. If the level is measured from the top of the casing, the elevation of the top of the casing above the land surface must be given.

030.075 If any of the information required to be included by regulation or statute is omitted from the Well Driller's Report, the health authority will return this Report for correction.

SECTION 040

MINIMUM STANDARDS FOR CONSTRUCTION OF WATER WELLS

040.005 The minimum standards set forth in this subsection must be complied with and apply to all wells, except, observation, monitoring, piezometers and exploratory wells drilled to test aquifer performance.

	DOMECTIC AND PRIVATE WELLS	PUBLIC WATER WELLS
PROPERTY LINES AND EASEMENTS (1)	5	5
SEPTIC SYSTEM DISPOSAL FIELDS	100	200
SEPTIC TANKS	100	200
BUILDING SEWER OR GRAVITY COMMUNITY SEWER LINE	50	50
WASTEWATER FORCE MAIN	100	150
FLOOD IRRIGATION	25	100
WATERCOURSES	25	25
DRAINAGE CHANNELS	25	25
OVERHEAD POWER LINES	12	12

(1) The setback requirements from easements only apply to underground, access and roadway easements.

040.010 If a building water supply line crosses a building sewer, the building sewer shall be located at least 18 inches lower than

the building water supply line as measured vertically from the exterior walls of the pipes. The building sewer shall consist of PVC, which is constructed with joints that comply with Standard D3212 of the American Society for Testing and Materials. The water supply line shall be installed in a pipe sleeve that extends, without joints, at least 10 feet on each side of the point of crossing.

040.015 Public water supply wells shall be located at least 150 feet from potential sources of contamination, not listed in Table 1, including but not limited to fuel storage tanks, chemical storage and animal habitation areas.

040.020 No public water supply well shall be placed within the limits of the 100-year flood plain as delineated on the FEMA Flood Insurance Rate map series unless the casing extends 30 inches above the 100 year flood plain elevation and is sealed to prevent infiltration. The casing for all other drinking water wells must be extended at least 2 feet above the 100 -year flood plain elevation.

040.025 Dug water wells and jetted water wells are prohibited.

SECTION 050

DRILLING, CONSTRUCTION AND PLUGGING OF WELLS

050.005 Except as otherwise provided in NAC 534.315, a well driller shall not drill a water well within a groundwater basin designated by

the state engineer until the well driller determines that a permit to appropriate the groundwater has been issued pursuant to NRS 534.050.

050.010 Except as otherwise provided in section 050.015, all wells must be cased to the bottom of the well bore and constructed to prevent contamination or waste of the ground water.

050.015 If no additional water is developed in the bottom portion of a well, neat cement, cement grout or concrete grout must be placed by tremie pipe in an upward direction from the bottom of the well bore to the bottom of the casing.

050.020 The casing must:

1. Except as otherwise provided in Section 050.055, be made of new steel or clean and sanitary used steel. Materials other than steel may be used if the design of the well or the subsurface conditions prevent the use of steel casing and a professional engineer who holds a certificate of registration issued pursuant to Chapter 625 of NRS has approved the casing materials.
2. Be free of pits and breaks.

25

3. Conform to the following minimum specifications, allowing for mill tolerance:
 - a. If the conductor casing is 50 feet or less in depth, the thickness of the wall must be:
 - i. At least 0.141 or 9/64 of an inch if the wall is made of a material other than galvanized steel pipe that has been corrugated; or
 - ii. At least 0.109 or 7/64 of an inch if the wall is made of galvanized steel pipe that has been corrugated.

- b. If the depth of the conductor casing exceeds 50 feet, and for all production or intermediate casing, the wall must be sufficiently thick to conform to the casing sizes listed in sub-subparagraphs i) to iv), inclusive:
 - i. If the casing is smaller than 10 inches nominal size, the wall must be at least 0.188 or 3/16 of an inch thick.
 - ii. For 10, 12, 14 and 16 inch nominal size casing, the wall must be at least 0.250 or 1/4 of an inch thick.
 - iii. For 18 and 20 inch nominal size casing, the wall must be at least 0.312 or 5/16 of an inch thick.
 - iv. For casing larger than 20 inches nominal size, the wall must be at least 0.375 or 3/8 of an inch thick.
- 4. The perforated casing shall be machined milled or commercially manufactured.

050.025 The top of the well casing must be at least 12 inches above the final ground surface or finished grade.

050.030 Except as otherwise provided in Sections 050.035 and 050.040, each well that is drilled, deepened or reconditioned must have:

- 1. An access port near the top of the casing that is not less than 1 inch in diameter; or
- 2. A commercially manufactured sanitary well cap, which may be easily removed to determine the level of water in the well.

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050.035 An access port must have a watertight, screw-type cap seal to prevent contamination and must be kept closed.

050.040 On wells that are 8 inches in diameter or smaller, the access may be a 1/2-inch hole at the top of the casing or in the casing cover with a removable plug or bolt.

050.045 All production casing joints must be threaded and coupled or welded and be watertight. If the casing joints are welded, each joint must be welded all the way around. Spot welds of casing joints are prohibited.

050.050 The well driller shall ensure that the integrity of any casing to be used in the construction of the well has not been impaired by storage, shipping, and handling or by exposure to ultraviolet light.

050.055 New thermoplastic water well casing made of polyvinyl chloride (PVC) may be used as well casing in a new well, if the casing:

- a. Is clearly marked as casing; and
- b. Complies with the standards adopted by the American Testing and Materials, designated as ASTM. 480, which are hereby incorporated by reference.

050.060 If PVC casing is used, the joint connections must be:

1. Flush-threaded;
2. Threaded and coupled; or
3. Joined with nonmetallic couplings that is sealed with elastomeric sealing gaskets and which consist of flexible thermoplastic splines that that are inserted into precisely machined grooves in the casing. The joint connections must not be glued or joined by restraining devices that clamp into or otherwise damage the surface of the casing. If the joint

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connections are flush-threaded or threaded and coupled, the well driller shall ensure that the connections are not over- tightened.

050.065 If polyvinyl chloride casing is used in a water well or monitoring well, the well driller shall set a protective steel casing which complies with the provisions of 050.010 and 050.015 and extends not less than 5 feet inside the sanitary seal and not less than 1 foot above the finished grade. The top of the protective casing must be fitted with a locking cap or a standard sanitary well cap.

050.070 The driller shall take the precautions necessary to:

1. Seal off any know zones of poor quality water, which may affect the zones of good quality water in the well.
2. Prevent contamination or waste of groundwater.

050.075 Any additive used in drilling a well must be safe and must not contaminate or induce contamination of the groundwater.

050.080 If it becomes necessary for the driller to discontinue the drilling operation before completion of the well, the well must be covered securely to prevent a contaminant from entering the casing or well bore and rendered secure against entry by children, domestic animals and wildlife.

050.085 After drilling is completed, all openings must be closed off to prevent contamination of the well. A sanitary well cap must be secured to the well casing or a steel plate must be welded to the top of the well casing.

050.090 If drilling is suspended for any reason, the Division and the Health Authority must be notified within 24 hours after drilling is suspended or before the drilling equipment is removed from the drilling site, whichever occurs first. The suspension of drilling without completing or plugging the well must be approved by the Division and the Health Authority.

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050.095 If a contaminant or contaminated water is encountered during the construction of a well, the strata which contain the contaminant or contaminated water must be cased and/or sealed in such a manner that the contaminant or contaminated water does not commingle with or impair other strata or the water contained in the other strata. The well driller shall, by grouting or by using special seals or packers, prevent the movement of the contaminant or contaminated water in the well bore.

050.100 Before the drill rig is removed from the well site of a well, the annular space between the well bore and the casing must be sealed by:

1. Placing neat cement, cement grout, concrete grout or Bentonite grout, which consists of not less than 30 percent Bentonite, from the sealing depth to 10 feet below the surface; and
2. Placing neat cement, cement grout or concrete grout from 10 feet below the surface to the surface.

050.105 The casing must be centered as nearly as practicable in the well bore to allow the sanitary seal to surround the casing.

050.110 If a temporary conductor casing is used, it must be withdrawn during the placement of the grout.

050.115 If a pitless adapter is used in domestic or small commercial wells:

1. The sanitary seal must begin not more than 5 feet below the surface of the ground;
2. The sanitary seal must extend at least 50 feet below ground level; and
3. The portion of the casing above the sanitary seal must be backfilled to ground level with uncontaminated soil, which is compacted

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050.120 A pipe used to feed gravel through the sanitary seal or to provide access to the interior of the well must be fitted with a watertight cap.

050.125 A licensed driller must place the seal or directly supervise the placement of the seal on the job site.

050.130 The seal must be placed:

1. In the annular space within 3 days after the casing is set and before the drill rig is removed from the drill site.
2. In one continuous mass or completed within 24 hours.
3. By tremie pipe in an upward direction to displace the fluid to the surface of the ground, if any fluid is standing in the well bore above the sealing depth.

050.135 The diameter of the well bore must be at least 4 inches larger than the diameter of the outside of the outermost casing to be used. If a fill pipe for gravel is installed, the diameter of the well bore must be 4 inches larger than the diameter of the casing plus the diameter of the fill pipe for gravel. A fill pipe for gravel or any other pipe to provide access to the interior of the well must be completely surrounded by the seal. A conductor casing may be used to convey the gravel pack. If a conductor casing is used:

1. The diameter of the well bore must be at least 4 inches larger than the diameter of the conductor casing; and
2. The annular space between the conductor casing and the well bore must be sealed.

050.140 A watertight seal must be installed at the surface level between the conductor casing and the production casing to prevent any contaminants from entering the gravel pack conductor area. A welded plate or concrete seal must be used. If a welded plate is used, the entire length of the plate must be welded to the conductor casing and production casing.

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050.145 If a well, other than a monitoring well is drilled within ¼ mile of a river, lake, perennial stream, unlined reservoir or unlined canal:

1. Perforations in the casing are prohibited from ground level to a depth of 100 feet.
2. The well must be sealed to a depth of 100 feet.
3. A permanent conductor casing may be used to convey the gravel pack to the 100-foot level.

050.150 If a well is being drilled pursuant to a permit or waiver from the Division, the well driller is responsible for satisfying the terms and conditions of the permit or waiver concerning the construction of the well.

050.155 Except as otherwise required in Sections 020.055 and 020.075 a permit from the Division to appropriate ground water is not required for the drilling of domestic wells.

050.160 A well drilled for domestic use only must have a casing size not larger than 8.625 inches in diameter.

050.165 A replacement well may be drilled if the original well is plugged as required in Sections 060.005 through 060.070.

050.170 An exploratory well must be:

1. Plugged by the well driller in the manner prescribed in Sections 060.005 through 060.070 within 3 days after the completion of the aquifer test for which the well was drilled; or
2. Completed as a well pursuant to the provisions of this regulation before the drill rig is removed from the location.

050.175 If an artesian condition is encountered in a well, it must be controlled in the manner prescribed in this section. The well driller shall ensure that unperforated casing extends through the

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confining strata above the artesian zone. The annular space must be sealed with neat cement, cement grout or a Bentonite grout with a minimum active solids content of 30%. The grout must be placed by tremie pipe in an upward direction from the top of the artesian stratum to a height necessary to prevent the leakage of artesian water above or below the ground surface. Any flow of water must be stopped completely before the drill rig is removed from the drill site.

SECTION 060

Plugging of Wells

- 060.005** Except as otherwise provided in Section 060.060, all wells must be plugged in the manner prescribed in this section by a well driller licensed by the state engineer.
- 060.010** Prior to plugging a well, a well driller shall obtain a Well Construction Permit pursuant to Section 020. and notify the Division pursuant to NAC 534.420.
- 060.015** A well driller shall notify the Health Authority not less than one full working day before he begins to plug the well.
- 060.020** Before the driller begins to plug the well, he shall if possible, obtain the log and record of work for that well from the Division or the owner of the well.
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- 060.025** A well must be plugged by:
1. Removing the pump and/or debris from the well bore with appropriate equipment; and
 2. If an annular cement seal was not installed, breaking the casing free with appropriate equipment so that the casing may be pulled from the well.
- 060.030** If the casing in the well breaks free, the driller shall plug the well bore in the manner prescribed in Section 060.070 as the casing is pulled from the well or after the casing is removed from the well if the well bore remains intact. The well must be plugged from the total depth of the well to the surface of the well, in stages if necessary, to displace in an upward direction any fluid or debris in the well.

060.035 If the casing does not break free, the driller shall perforate that portion of the casing, which extends from the bottom of the well to not less than 50 feet above the top of the uppermost saturated ground water stratum. That portion of the casing must be perforated not less than four times per linear foot to allow the plugging fluid to penetrate the annular space and the geologic formation. The perforations made in each linear foot of the casing must be made along a horizontal plane of the well bore. The angle between any two consecutive perforations made on a horizontal plane must not exceed 90 degrees, as measured from the center of the well bore. A well with a diameter of more than 8 inches in nominal size must be perforated a sufficient number of additional times per linear foot to ensure that the plugging fluid penetrates into the annular space and formation. The well driller shall then plug the well from the total depth of the well to 50 feet above the uppermost saturated ground water stratum or to within 20 feet of the surface of the well, whichever is less, with neat cement or Bentonite grout specifically designed to plug abandoned wells.

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060.040 The well driller shall place a surface plug in the well consisting of neat cement, cement grout or concrete grout from a depth of at least 20 feet to the surface.

060.045 If the well casing does not break free and there is no evidence of a sanitary seal around the well casing, the driller shall, in addition to the requirements of Sections 060.030 and 060.035, perforate the upper 50 feet of casing before setting the surface plug. The casing must have at least four perforations per linear foot of casing and the surface plug must consist of neat cement.

060.050 A well driller shall submit a written report to the health authority within 30 days after a well has been plugged. The report must contain the location of the well by public survey and county

assessor's parcel number, the name of the owner of the well, the condition of the well, the static water level before plugging, and a detailed description of the method of plugging including, but not limited to:

1. The depth of the well;
2. The depth to which the materials used to plug the well were placed;
3. The type, size and location of the perforations which were made in the casing;
4. The debris encountered in, milled out of or retrieved from the well; and
5. The volume and type of materials used to plug the well.

060.055 If there is any standing liquid in the interval of the well bore which is being plugged, all grout materials used in this section shall be placed by tremie pipe in an upward direction.

060.060 A well driller who wishes to plug a well in a manner which does not comply with the provisions set forth in NAC 534.420 or Sections 060.005 through 060.070 must request and obtain approval from the Division and the Health Authority.

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060.065 If the Division or the Health Authority authorizes the well driller to plug the well in a manner other than the manner set forth in these regulations, the well driller shall comply with the instructions he receives from the Division or Health Authority, if any, relating to the manner in which the well must be plugged. The above instructions and information must be included in the Well Driller's Report.

060.070 If a well is located on private land, the owner of the land at the time the well is plugged is responsible for the cost of plugging the well. If a well is located on public land, the person who last drilled or used the well is responsible for the cost of plugging the well.

060.075 The well shall be plugged pursuant to NRS 534.140 and Sections 060.005 through 060.070 if any of the following exists:

1. The well was constructed by an unlicensed driller.
2. The well was not constructed or completed in compliance with the provisions of these regulations.
3. If a well other than a water well drilled for domestic purpose for which a permit or waiver has not been issued.
4. If any type of permit, waiver or application to appropriate water from a water well is canceled, abrogated, forfeited, withdrawn or denied.

SECTION 070

PROVISIONS FOR MONITORING WELLS

070.005 Except as indicated elsewhere in this section, any person who proposes to install a monitoring or extraction well in the Washoe County Health District must:

1. Obtain a permit to appropriate water from the Division or must obtain a declaration from the Division that stipulates that no permit is necessary; and

2. Obtain a well construction permit from the Health Authority.

070.010 Only one well construction permit is required in situations where multiple monitoring or extraction wells are to be installed for a single project and their installations are completed within 30 days from the initiation of installation.

070.015 A well construction permit is not required in situations where either the Health Authority or the Nevada Division of Environmental Protection have authorized the installation of a monitoring or extraction well for the purpose of delineation or cleanup of a groundwater contamination plume. To qualify for the exemption there must be a written order from the Health Authority or Nevada Division of Environmental Protection requiring a delineation and/or remediation plan. Monitoring wells are not exempt from the construction and abandonment requirements of these regulations.

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070.020 The Plot Plan must be drawn to 1 inch = 20 feet, 1 inch = 30 feet or 1 inch = 40 feet scale. Plot Plans for projects that are 30 acres or larger in size may be drawn to 1 inch = 100 feet scale. The Plot Plan must include the following information:

1. The name, address and current daytime phone number of the applicant.
2. The Assessor's Parcel Number of the property, which is the subject of the permit.
3. Vicinity map.
4. The direction of North.
5. A diagram of the lot dimensions and total lot area.
6. The location of the proposed monitoring wells.
7. A diagram of the location of roadways, easements, underground utilities and potential sources of contamination
8. A diagram of all existing or proposed structures on site.

9. A diagram of all existing and proposed drainage improvements.

070.025 If the well construction permit application does not contain the above information, it is considered incomplete and may be rejected.

070.030 A monitoring well must be:

1. Drilled only by a well driller who is licensed by the Division; and
2. Constructed in accordance with the provisions of these regulations; and
3. Drilled only for the purposes of compliance with federal, state, or local environmental requirements or any other federal, state or local requirements.

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070.035 A plot plan showing the actual location of the monitoring well and a Well Driller's Report which contains the information described in Section 030.070 must be submitted within 30 days after completion of the well by the person who is responsible for the well. The plot plan must indicate the distance of the well from permanent reference points, including streets, address or section or property lines.

070.035 The owner of a monitoring well shall ensure that the well does not cause contamination of ground water during its use, and that the well is plugged upon abandonment.

070.040 The owner of a monitoring well shall notify the Health Authority in writing as soon as it is determined that monitoring is no longer required.

070.045 A well driller shall install casing and perforated casing or screen in a monitoring well. If polyvinyl chloride (PVC) casing is used, it must comply with the standards adopted by the American Society for Testing and Materials, designated as ASTM F-480.

1. The well driller shall take the precautions necessary to prevent contamination of ground water. The equipment used to install a monitoring well must be decontaminated before the construction of the well is commenced.
2. The diameter of the casing must not exceed 4 inches in nominal size.
3. The connections of the casing must comply with the provision of Sections 050.010 through 050.040. The connections must be made watertight by wrapping them with Teflon tape, placing a ring or gasket between them or by any other method, which will not introduce contaminants into the well.
4. A monitoring well must be capped at both ends of the casing.

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5. The perforations must be of a width and length which will allow the strata to be observed while not permitting the infiltration of the gravel pack through the casing or allowing the contaminants or water from separate strata to commingle.
6. To ensure adequate space for the gravel pack and seals, the well bore of a monitoring well must, for the entire length of the casing placed in the well, be at least 4 inches larger than the diameter of the casing.
7. Not more than one perforated or screened section of casing may be placed in the well bore of a monitoring well unless the vertical intervals of the well bore in between the screened sections are sealed with neat cement, cement grout, Bentonite grout or fully hydrated sodium Bentonite tablets or chips.

8. Not more than one casing may be placed in the well bore of a monitoring well unless the vertical intervals of the well bore in between the screened sections of the casings are sealed with neat cement, cement grout, Bentonite grout or fully hydrated sodium Bentonite tablets or chips.

9. Monitoring wells must otherwise be drilled an adequate distance from each other to ensure that there is no commingling of the contaminants or ground water encountered in the wells.

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- 070.050** If the water or vapors, which are being monitored in a monitoring well, are not encountered within 5 feet below the surface of the ground, the well driller shall place in the annular space of the well:
1. From the bottom of the well to 2 feet above the upper most perforation in the casing, a gravel pack, which consists of quartz sand, silica or other materials, which will not contaminate the ground water or the geologic formation;
 2. From the gravel pack placed pursuant to subsection 1. to 2 feet above that gravel pack a seal consisting of fully hydrated sodium Bentonite pellets or Bentonite grout; and
 3. From the seal placed pursuant to subsection 2. to the surface, a seal consisting of cement grout, neat cement, concrete or Bentonite grout.
- 070.055** If the water or vapors which are being monitored in a monitoring well are encountered within 5 feet below the surface of the

ground, the well driller shall comply with the requirements of Section 070.090, except that:

1. The gravel pack required pursuant to Section 070.045 Subsection 1. must extend only 6 inches above the upper most perforation in the casing; and
2. The surface seal required pursuant Section 070.045 Subsection 3. must be placed from 1 foot below the surface to the surface.

070.060 The well driller shall ensure that a bridge does not occur in the annular space during the placement of the gravel pack and seals required pursuant to Sections 070.045 and 070.050.

070.065 If more than 20 continuous feet of grout are placed in the annular space of the well or if there is standing liquid in the well bore above the sealing depth, the grout must be placed by tremie pipe in an upward direction.

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070.070 If a contaminant or contaminated water is encountered during the construction of a monitoring well, the strata which contain the contaminant or contaminated water must be cased and sealed in such a manner that the contaminant or contaminated water does not commingle with or impair other strata or the water contained in the other strata. The well driller shall seal the strata by grouting or by using special seals or packers, if necessary, to prevent the movement of the contaminants or contaminated water in the well bore.

070.075 Unless the area surrounding a monitoring well is paved with concrete or asphalt, a surface pad must be installed around the casing at the surface.

070.080 A threaded or flanged cap or compression seal must be installed to prevent unauthorized use of the well. If the top of the well is flush with the surface and the well protector required pursuant to

Section 070.080 is of a type, which may not be locked, the cap or seal must be of a type, which may be locked.

070.085 The well must also be protected and secured by:

1. If it is not necessary for the well to be flush with the surface:
 - a. Setting a steel surface casing which complies with the requirements set forth in sections 050.010 through 050.035, which extends not less than 5 feet below the surface pad and not less than 1 foot above the surface pad;
 - b. Fitting the top of the steel casing with a locking cap; and
 - c. Clearly marking the well as a monitoring well; or

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2. If it is necessary for the well to be flush with the surface:
 - a. Placing a well protector capable of supporting vehicular travel which extends one-half inch above the surface pad or concrete or asphalt paving; and
 - b. Clearly marking the well as a monitoring well.

070.090 If an artesian condition is encountered in a monitoring well, the well driller shall ensure that the well is sealed in the manner prescribed in Section 050.120.

070.095 Except as otherwise provided in this section, a monitoring well must be plugged in the manner prescribed in Sections 060.005 through 060.070 within 3 days after it is abandoned.

070.100 Except as otherwise provided in Section 070.105, 070.110 and 070.115, a monitoring well may be plugged by:

1. Placing neat cement or a high-solids Bentonite grout, which consists of not less than 20 percent Bentonite, by tremie pipe in an upward direction from the bottom of the well to the surface; or
2. Placing sodium Bentonite pellets or granules or Bentonite grout from the bottom of the well to 20 feet below the surface and placing neat cement from 20 feet below the surface to the surface. Sodium Bentonite pellets or granules may not be placed in more than 100 feet of standing liquid unless the pellets or granules have been coated by the manufacturer to delay hydration.

070.105 The casing in the monitoring well must be removed from the well bore if:

1. The soil or water in the well is contaminated; or
2. The well was not constructed pursuant to the provisions of these regulations; or

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3. The well was constructed by a person who is not a licensed well driller.

070.110 Except as otherwise provided in subsection 070.115, neat cement or high-solids Bentonite grout must be placed by tremie pipe in an upward direction from the bottom of the well to the surface as the casing is removed from the well bore.

070.115 If the integrity of the well bore remains intact as the casing is removed from the well bore, the well may be plugged as provided in Sections 060.005 through 060.070.

070.120 A well driller may construct a drive point monitoring well without placing in the annular space of the well, the gravel pack and seals required pursuant to Sections 070.045 through 070.060.

070.125 The diameter of the casing used in a drive point well, which is not constructed pursuant to the provisions of Sections 070.045

through 070.060, must not be larger than 2 inches in nominal size.

- 070.130** A drive point well which is not constructed pursuant to the provisions of Sections 070.045 through 070.060 must be plugged within 60 days after the well is constructed. Upon plugging, the casing must be removed from the well bore and the well bore must be plugged in the manner provided in Sections 060.005 through 060.070.

SECTION 080

Application for Variance

- 080.005** Any person who cannot comply with these regulations may apply to the Sewage, Wastewater, Sanitation and Well Construction Hearing Board for a variance to the regulations.
- 080.010** The Variance Application must:
1. Include the non-refundable fee set by the District Board of Health,
 2. Specify all the sections of these regulations for which a variance is requested, and
 3. Have information required to enable the staff and hearing boards to consider adequately the request.
- 080.015** A request for a variance to the requirements of these regulations must be made in writing and a brief statement of the reason for requesting the variance and the section of the regulations include:
1. To be varied,

2. The location or proposed location of the well by public survey;
and
3. The name and address of the owner of the well;
4. The street address of the well or, if there is no street address, a description of the location of the proposed well, including but not limited to, common landmarks and cross-streets near the location of the well;
5. The county assessor's parcel number for the location of the proposed well;
6. A brief description of the proposed design and a sectional drawing of the proposed well;
7. A notarized affidavit signed by the owner or his authorized agent of the land where the well will be located which stipulates that he will be responsible for plugging the well if it is abandoned; and
8. Any other information required pursuant to the provisions of this chapter.

SECTION 090

Unlawful Acts and Penalties

- 090.005** Any person who violates any provision of these regulations is guilty of a misdemeanor.
- 090.010** Each day or part of a day during which such violation is continued and/or repeated constitutes a separate violation.

SECTION 100

Circumvention and Interpretation

- 100.005** Nothing contained herein shall be interpreted to circumvent these regulations to make them less effective.
- 100.010** If more than one (1) interpretation exists for a regulation, the more restrictive interpretation shall be followed.

SECTION 110

Severability

If any provision of these regulations is held invalid or unconstitutional, such invalidity or unconstitutionality shall not affect the other provisions, which can be given effect without the invalid provision, and to this end the provisions of these regulations are declared to severable.

APPENDIX 1

NAC 445A

NAC 445A.66585 “Water project” defined. ([NRS 445A.860](#)) “Water project” means the initial construction, or any renovation, modification or expansion, of:

1. Each portion of a public water system that begins operation after February 20, 1997; or
 2. Each portion of a public water system that began operation on or before February 20, 1997, if the portion of the public water system is involved in:
 - (a) The collection, pumping, treatment, storage or distribution of water; or
 - (b) The boosting, sustaining or reducing of water pressure,
- ↳ except any construction, renovation, modification or expansion approved by a health authority or other appropriate governmental entity before February 20, 1997.
(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6669 Prerequisites to commencement of water project; waiver of prerequisites; exceptions. ([NRS 445A.860](#))

1. Except as otherwise provided in this section, a supplier of water shall, before commencing a water project:
 - (a) Submit to the health authority, with the appropriate fees, an application for approval of the water project that complies with the requirements of [NAC 445A.66695](#);
 - (b) Obtain the health authority’s review and written approval of the water project.
2. A health authority may waive the provisions of subsection 1 if:
 - (a) The water project is limited to a modification or expansion of a distribution system which:
 - (1) Involves 500 feet or less of the distribution system;
 - (2) Affects not more than 5 percent of the total number of service connections to the public water system; or
 - (3) Increases the total number of service connections to the public water system by not more than 5 percent;
 - (b) The water project otherwise complies with the provisions of [NAC 445A.65505](#) to [445A.6731](#), inclusive;
 - (c) The supplier of water:
 - (1) Employs or contracts with an engineer to carry out the provisions of [NAC 445A.66705](#) regarding the water project;
 - (2) Submits to the health authority a copy of its manual of operations and maintenance for the public water system; and
 - (3) Submits to the health authority annual reports which:
 - (I) Summarize the status of work on the water project; and
 - (II) Contain maps depicting the distribution system, as it is being built.
3. The provisions of subsection 1 do not apply to any activities necessary for:
 - (a) The maintenance of any facilities of a public water system, except for the relining or recoating of storage tanks; or
 - (b) The repair of any facilities of a public water system in an emergency. The supplier of water shall notify the health authority immediately, by telephone, when an emergency exists that threatens the quality of water.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66695 Application for approval of water project. ([NRS 445A.860](#)) An application for approval of a water project must contain:

1. Complete plans for the water project, including the details of any improvements to be made and all work to be performed on site.
2. Complete specifications to supplement the plans for the water project.
3. A design report that:
 - (a) Describes the water project and basis for design of the water project;
 - (b) Provides the criteria for design, data and other pertinent information defining the water project; and
 - (c) Establishes the adequacy of the proposed water project to meet the needs of the public water system.
4. Chemical, physical, bacteriological and radiological analyses of any new sources of water which are proposed to be used, which:
 - (a) Are conducted by a properly certified laboratory; and
 - (b) Indicate that the water complies with the provisions of [NAC 445A.450](#) to [445A.492](#), inclusive.
5. The requirements for fire flow and fire demand.
6. Any other pertinent information required by the health authority to evaluate the application.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66705 Preparation of plans, specifications and design reports for water project: Duties of engineer. ([NRS 445A.860](#)) All initial and final plans, specifications and design reports for a water project must be prepared by, or under the direct supervision of, an engineer. The engineer shall affix his signature, the applicable date and his wet seal or stamp to each sheet of those plans and to each title page for those specifications and design reports.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6671 Approval of water project: Prerequisites; effective period; revocation. ([NRS 445A.860](#))

1. A health authority shall not approve a water project unless the application for approval of the water project demonstrates that the water project will comply with the applicable provisions of [NAC 445A.65505](#) to [445A.6731](#), inclusive.
 2. Approval of a water project is effective for 1 year, except that a health authority may extend this period in 1-year increments if:
 - (a) Work is being performed on the water project; and
 - (b) The health authority receives a schedule of work and periodic updates on the progress of the water project.
 3. A health authority shall revoke its approval of a water project if work on the water project:
 - (a) Does not commence within 1 year after the approval of the water project becomes effective; or
 - (b) Ceases for a continuous period of 1 year.
- (Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66715 Performance and inspection of work on water project; certification of substantial compliance with approved plans and specifications. ([NRS 445A.860](#))

1. Work on a water project must be:

(a) Performed in substantial compliance with the plans and specifications approved for the water project by the health authority. Approval of the health authority is required before carrying out any proposed changes in materials, equipment, quantities, configurations or processes, and before any additions or deletions of infrastructure, which would affect the quality or quantity of water.

(b) Inspected by qualified representatives of the supplier of water.

2. Within 30 days after the completion of a water project, the supplier of water shall certify to the health authority that the water project was completed in substantial compliance with the plans and specifications approved for the water project by the health authority.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66855 Water wells: General requirements. (NRS 445A.860) If a water well is used as a source of water for a public water system, the water well must comply with:

1. The provisions of [NAC 445A.66855](#) to [445A.6693](#), inclusive;

2. All of the provisions of *American Water Works Association Standard A100* that do not conflict with any of the provisions described in subsection 1; and

3. All of the provisions of [chapter 534](#) of NAC that do not conflict with any of the provisions described in subsections 1 and 2.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6686 Water wells: Establishment of redundant capacity for development and treatment of water. (NRS 445A.860) A health authority may require a supplier of water to establish a redundant capacity for the development and treatment of water if:

1. A water well is the sole source of water for the public water system; and

2. Based upon the remoteness of the facilities, availability of spare parts, access to equipment and other factors in a particular case, the health authority determines that the redundancy is desirable to protect the public health and ensure the availability of safe and reliable drinking water.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66865 Water wells: Location. (NRS 445A.860)

1. Before designing and carrying out a proposal for the location of a water well, a supplier of water shall:

(a) Submit to the health authority information on any flood zone that includes the proposed location; and

(b) In consultation with the health authority, identify all potential sources for the pollution or contamination of ground water at the proposed location.

2. Except as otherwise justified by an engineer and approved by the health authority, no water well may be located:

(a) Within 50 feet of a gravity sanitary sewer or gravity storm sewer; or

(b) Within 150 feet of a wastewater force main, wastewater lift station, septic tank or absorption field, or any other source of pollution or contamination.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6687 Water wells: Prohibited types. (NRS 445A.860) A supplier of water shall not use a drive point water well, a dug water well or a jetted water well as a source of water for the public water system.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66875 Water wells: Documentation of right to divert water. (NRS 445A.860)

Before a public water system uses a water well as a source of water, the supplier of water shall submit to the health authority documentation indicating that the supplier of water has a legal right to divert water from the well for municipal, quasi-municipal or domestic purposes.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6688 Water wells: Determination and reporting of yield characteristics of well. (NRS 445A.860) After the construction of a water well and before the attachment of a permanent pump to the well, the supplier of water shall:

1. Cause a step drawdown test and a constant discharge aquifer test, or another engineering investigation or analysis suitable for determining the characteristics of the well for the production of water, to be performed on the well and submit the results of the tests, investigation or analysis to the health authority. The supplier of water shall coordinate its activities with the Division of Environmental Protection to ensure that any discharge of water resulting from the tests, investigation or analysis will not violate any standards for water quality.

2. Determine the well yield for the well and submit that information to the health authority.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66885 Water wells: Prerequisites to use after construction, modification or reconditioning. (NRS 445A.860)

1. After the construction of a water well is completed and before any water from the well is allowed to enter a public water system, the supplier of water shall:

(a) Submit to the health authority a copy of a chemical analysis conducted by a properly certified laboratory which indicates that the water complies with the provisions of [NAC 445A.450](#) to [445A.492](#), inclusive; and

(b) If the supplier of water proposes to blend, dilute or otherwise treat the water to attain compliance with any of those provisions:

(1) Submit to the health authority a complete description of the proposal, as prepared by an engineer; and

(2) Obtain the approval of the proposal by the health authority.

2. After the construction of any modification or reconditioning of a water well is completed and before the well is placed into service:

(a) The well and any associated pumping equipment must be disinfected in compliance with *American Water Works Association Standard C654*; and

(b) A satisfactory bacteriological analysis of a sample of the water from the well must be submitted to the health authority.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6689 Water wells: Casing. (NRS 445A.860)

1. Except as otherwise provided in subsection 2, a water well must be cased to the bottom of the drill hole and constructed in such a manner as to prevent any pollution or contamination of the ground water.

2. If no additional water is developed in the bottom portion of a water well, neat cement, cement grout or concrete grout may be placed by tremie pipe from the total depth to the bottom of the casing.

3. The casing must:

(a) Be composed of:

(1) A quality of steel that complies with *American Water Works Association Standard A100*; or

(2) Where authorized by the Division of Water Resources of the State Department of Conservation and Natural Resources, a quality of PVC that complies with *American Water Works Association Standard A100*.

(b) Be free of pits and breaks.

(c) Conform to the following minimum specifications, allowing for mill tolerance:

(1) If the conductor casing is 50 feet or less in depth, the wall of the casing must be at least 0.141 or 9/64 of an inch thick.

(2) Except as otherwise provided in subparagraph (3), if the depth of the conductor casing exceeds 50 feet, and for all production or intermediate casing, the wall of the casing must comply with the following requirements:

(I) If the nominal size of the casing is smaller than 10 inches, the wall must be at least 0.188 or 3/16 of an inch thick.

(II) If the nominal size of the casing is 10, 12, 14 or 16 inches, the wall must be at least 0.250 or 1/4 of an inch thick.

(III) If the nominal size of the casing is 18 or 20 inches, the wall must be at least 0.312 or 5/16 of an inch thick.

(IV) If the nominal size of the casing is larger than 20 inches, the wall must be at least 0.375 or 3/8 of an inch thick.

(3) If the depth of the well exceeds 300 feet, the thickness of the wall of the casing must be increased in accordance with *American Water Works Association Standard A100*.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66895 Water wells: Prevention of pollution and contamination. ([NRS 445A.860](#))

1. Drilling fluids and additives must not impart any substances into the water which will cause or promote any pollution or contamination.

2. If inferior quality water is encountered at any time during the construction of a water well, the aquifers containing that water must be adequately cased or sealed off in such a manner that the water cannot enter the well or move either up or down the annular space outside the casing of the well. If necessary to prevent the movement of that water, appropriate packers or seals must be installed.

3. If a gravel-packed well encounters inferior quality water, the aquifers containing that water must be sealed off by pressure grouting, or with appropriate packers or seals, in such a manner as to prevent that water from moving vertically in the gravel-packed portions of the well.

4. As used in this section, "inferior quality water" means any mineralized water or water known to be polluted or contaminated.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66905 Water wells: Seals and coatings. ([NRS 445A.860](#))

1. Except as otherwise provided in subsection 4 and [NAC 445A.6691](#), a water well must have a sanitary seal consisting of neat cement, cement grout or concrete grout from a depth of not less than 50 feet below the surface to ground level, constructing the sanitary seal from bottom to top. If grout is used, contact must be ensured between the grout and the native formation. The sanitary seal must have a minimum thickness of 2 inches in the annular space of the well. The casing must be centered as nearly as practicable in the drill hole in such a manner

as to allow the sanitary seal fully to surround the casing. Dry cement must not be placed in the annular space for use as a sanitary seal.

2. Before any product may be used to coat, seal, patch or otherwise become attached to the surface of any material used to construct a water well in such a manner that the product will come into contact with drinking water, the product must be determined to be compatible with drinking water.

3. If a permanent conductor casing is used in a water well, a watertight seal, consisting of concrete or a welded plate, must be placed at the surface level between the conductor casing and the production casing in such a manner as to prevent any pollutants or contaminants from entering the area of gravel pack.

4. If a pitless adapter is used in the construction of a water well:

(a) The sanitary seal must begin not more than 5 feet below the ground, be continuous and extend at least 50 feet; and

(b) The exterior portion of the casing above the sanitary seal must be refilled to ground level with native material.

5. Any pipe used to feed gravel through the sanitary seal of a water well or to provide access to the interior of a water well must be fitted with a watertight cap.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6691 Water wells: Construction near certain other sources of water. ([NRS 445A.860](#)) If a water well is drilled within 1/4 mile of a perennial stream, river, lake, unlined reservoir or unlined canal:

1. There must be no perforations in the production casing from ground level to a depth of 100 feet.

2. The well must have a sanitary seal to a depth of 100 feet.

3. A permanent conductor casing may be used to convey the gravel pack to the 100-foot level.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66915 Water wells: Slabs and pedestals; construction with lineshaft turbine pump or submersible pump. ([NRS 445A.860](#))

1. A water well with an above-ground discharge must be protected by a concrete slab and, if the well is equipped with a lineshaft turbine pump, with a concrete pedestal, both of which are constructed of continuously poured concrete. The pedestal must be of a sufficient diameter to extend at least 3 inches beyond the outer periphery of the sanitary seal. The slab must:

(a) Be placed above the finished grade;

(b) Have a minimum thickness of 6 inches;

(c) Slope away from the pedestal at a minimum slope of 2 percent;

(d) Extend a minimum of 4 feet from the casing of the well in all directions; and

(e) Be free from cracks and other defects likely to detract from its capability to remain watertight.

↪ The casing of the well must extend to a height of at least 12 inches above the slab and at least 18 inches above the level of the final ground surface or 100-year floodplain, whichever is greater.

2. If a water well is equipped with a lineshaft turbine pump:

(a) The top of the casing must be sealed into the base of the pump or the casing must be inserted into a recess extending at least 1 inch into the base of the pump.

(b) The foundation and base of the pump must be designed in such a manner as to prevent water from coming into contact with joints between the base of the pump and the casing, and from entering the well.

3. Any submersible pumps installed in a water well must be constructed in accordance with *American Water Works Association Standard E101*.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6692 Water wells: Access port or sounding tube; vent. ([NRS 445A.860](#))

1. Except as otherwise provided in subsection 2, a water well must have an access port which can be used for measuring the level of water. If the diameter of the casing is:

(a) No greater than 8 5/8 inches, the access port must:

(1) Be 1 inch in diameter and located at the top or in the cover of the casing; and

(2) Have a removable plug or bolt installed in such a manner as to prevent pollutants and contaminants from entering the well.

(b) Greater than 8 5/8 inches, the access port must:

(1) Be 2 inches in diameter and located near the top of the casing; and

(2) Have a watertight, screw-type cap which is:

(I) Sealed in such a manner as to prevent pollutants and contaminants from entering the well; and

(II) Kept sealed when not being used for measuring the level of water.

2. If the diameter of the casing of a water well is greater than 8 5/8 inches, the well may be equipped with a sounding tube, in lieu of an access port, which is:

(a) Not less than 3/4 inch nor more than 1 inch in diameter; and

(b) Installed in such a manner as to:

(1) Preclude the entanglement of the sounder around the drop pipe or in the wires of any submersible pump; and

(2) Prevent any interference with cascading water.

3. A water well must be equipped with:

(a) A vent that:

(1) Extends above the wellhead;

(2) Is elbowed toward the ground in the shape of an inverted “J”; and

(3) Is covered with a screen that is not susceptible to damage by corrosion and has not less than 22 nor more than 24 mesh per inch; or

(b) An air and vacuum valve that is attached to discharge piping.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.66925 Water wells: Pumping to system for waste. ([NRS 445A.860](#)) A water well must be equipped in such a manner as to be able to pump to a system for waste, in addition to the system for distribution, to allow flushing of the well. Piping that discharges into the system for waste:

1. Must not be connected directly to a sanitary sewer or storm sewer; and

2. Must be equipped with:

(a) An air gap; and

(b) An angled flapper valve on the opening for discharge.

(Added to NAC by Bd. of Health, eff. 2-20-97)

NAC 445A.6693 Water wells: Sampling tap. ([NRS 445A.860](#)) A water well must be equipped with a means for sampling the quality of water, consisting of a smooth-nosed sampling tap located on the discharge piping at a point where pressure is maintained.

(Added to NAC by Bd. of Health, eff. 2-20-97)