

Geothermal Wells in Nevada – Frequently Asked Questions

Churchill County, in cooperation with the Nevada Division of Minerals (NDOM), Nevada Division of Water Resources (NDWR), Nevada Division of Environmental Protection (NDEP), and the Nevada Attorney General (AG) have jointly prepared this brochure to address public safety and permitting issues relating to geothermal wells. This brochure is intended to primarily address residential or small commercial use of geothermal wells for space heating purposes. The information appearing in this brochure is for general informational purposes only and is not intended to provide legal advice to any individual or entity. We urge you to consult with your own legal advisor or the regulatory bodies identified at the end of this brochure with questions concerning your particular circumstances.

1. There are many hot water geothermal wells throughout Nevada that are used for domestic heating or other small commercial purposes. Some of these wells flow artesian at the surface and may pose a physical hazard and a danger to humans and animals from scalding temperatures in excess of 130°F. What are my responsibilities as a property owner with a flowing geothermal well?

Answer: To prevent the waste of artesian water from any well in Nevada, each well owner is required by law to provide the necessary valves, well seal, plugs or other appliances to control the loss of artesian water above or below the ground surface.

2. Can I still use my flowing artesian well for domestic space heating if I install a valve?

Answer: Yes. The use of water must only be to the extent necessary for heating and all used geothermal water must be injected back via an injection well. A Permit for domestic heating may be obtained from the NDOM. If water is re-injected, an injection permit must be obtained from the NDEP.

3. Is the geothermal resource a water right or a mineral right?

Answer: Nevada defines the geothermal resource as the natural heat of the earth and the owner of the property owns the underlying geothermal resources unless they have been reserved or conveyed to another person, the same as mineral rights.

4. How hot does my well water need to be to be considered Geothermal?

Answer: The State of Nevada does not define a specific temperature to be considered geothermal.

5. Do I need a water right?

Answer: If you produce the hot water and only extract the heat and inject all the water back, no water right is required from the NDWR but a permit to re-inject is required from the NDEP and a permit for domestic heating is required from NDOM.

6. What if I only have the one well and dispose of the water to my septic and leach field or to the surface, can I still use my well for heating and is a permit required for that?

Answer: Yes. All groundwater produced at the surface and not returned to the source does require a water right permit from the NDWR, Office of the State Engineer. NDWR is the principal agency responsible for regulating all wells in Nevada. A discharge permit will also be required by NDEP.

7. Is it legal to dispose of my geothermal water on the surface of the ground?

Answer: No, unless the consumptive use of groundwater is permitted by the NDWR. The NDEP also requires a discharge permit to insure that the water quality of the receiving waters, if any, is not degraded.

8. Do I need a water right for my domestic well?

Answer: No. A domestic well right is an allowance provided by law. Domestic use of water from a well in Nevada is defined as water from one well for one single family dwelling and related landscaping and domestic animals for up to two acre feet of water per year. Geothermal space heating, within the limits of the two acre foot allowance for one dwelling, may be considered part of the domestic use under Nevada law.

9. Can I have more than one domestic well on my parcel?

Answer: No. Any and all other wells on your property must be permitted for something other-than-domestic purposes or must be decommissioned and sealed. The State Engineer's staff is available to assist with permitting or decommissioning questions.

10. My well has been flowing this way for years. Could it be grandfathered in without a valve or a permit?

Answer: No. There is no provision in Nevada law for grandfathering in these old wells. The waste of artesian water is unlawful and all wells must be controlled at all times. The condition of the physical well is the responsibility of the owner of the land upon which the well is located and is separate from any water use permitting. The use of water must be authorized as a domestic well right or by water right permit or claim of vested right.

11. What other dangers may occur from flowing artesian wells?

Answer: If a well is allowed to flow hot water at the surface for long enough, or the annular space between the casing and borehole was not cemented from the top of the producing interval to the surface to prevent waste and to prevent any communication with fresh groundwater, washouts may occur around the well, and sometimes just below the ground surface as the water follows the path of buried pipes or other conduits and this may cause the ground to become unstable. At Yellowstone National Park for example, there are many warning signs to not walk in certain areas because of this fact.

12. What do I need to do to make my geothermal well legal?

Answer: Contact a Nevada licensed well service contractor or plumbing contractor to install a valve to control the water flow. A licensed well contractor is required if you have a well that needs to be decommissioned and sealed. Contact NDEP, NDOM and NDWR for any permitting related questions.

Pertinent Nevada Revised Statutes (NRS) :

NRS 534.020 Underground waters belong to public and are subject to appropriation for beneficial use; declaration of legislative intent.

1. All underground waters within the boundaries of the State belong to the public, and, subject to all existing rights to the use thereof, are subject to appropriation for beneficial use only under the laws of this State relating to the appropriation and use of water and not otherwise.

2. It is the intention of the Legislature, by this chapter, to prevent the waste of underground waters and pollution and contamination thereof and provide for the administration of the provisions thereof by the State Engineer, who is hereby empowered to make such rules and regulations within the terms of this chapter as may be necessary for the proper execution of the provisions of this chapter.

[1:178:1939; 1931 NCL § 7993.10]

NRS 534.060 Conditions for sinking wells; casings and appliances; repair of defective wells; liens; sealing of wells...

1. During the sinking or boring of a well the permittee shall cause to be placed in the well a proper and sufficient casing approved by the State Engineer, so arranged as to prevent the caving in of the well and to prevent the escape of water therefrom through any intervening sand or gravel stratum, which casing must be of sufficient length to reach the deepest aquifer encountered during the sinking or boring of the well.

2. The number, size, type and distribution of perforations is optional with the permittee, except that no perforations may be made in a pipe tapping confined (artesian) water above the confining impervious materials.

3. The permittee shall provide the necessary valves, plugs or other appliances to prevent or control the flow of water from the well and prevent the loss of underground water above or below the ground surface.

4. If in the judgment of the State Engineer a well is in any manner defective the State Engineer may order the owner to repair the well or, in the discretion of the State Engineer, may cause the well to be repaired or sealed. If the State Engineer elects to repair or seal the well, the cost of repairing or sealing the well must be paid from the water distribution account and must not be charged to the owner of the well or be a lien on the land upon which the well is located or on other land of the owner to which water from the well is appurtenant.

NRS 534.070 Waste of water from artesian well unlawful.

1. No person controlling an artesian well in any basin in Nevada shall suffer the waters therefrom to flow to waste, unless, and as far as reasonably necessary in the judgment of the State Engineer, to prevent the obstruction thereof, or to flow or be taken therefrom except for beneficial purposes.

2. The owner of any artesian well from which water is being unnecessarily wasted shall be guilty of a misdemeanor.

[8:178:1939; A 1943, 139; 1947, 52; 1955, 328]—(NRS A 1957, 720)

NRS 534A.010 “Geothermal resource” defined. As used in this chapter, unless the context otherwise requires, “geothermal resource” means the natural heat of the earth and the energy associated with that natural heat, pressure and all dissolved or entrained minerals that may be obtained from the medium used to transfer that heat, but excluding hydrocarbons and helium.

(Added to NRS by 1975, 611; A 1977, 1172; 1981, 659)

NRS 534A.040 Applicability of procedures for appropriation. A consumptive use of water brought to the surface outside of a geothermal well is subject to the appropriation procedures of chapters 533 and 534 of NRS, except for:

1. Water that is removed from an aquifer or geothermal reservoir to develop and obtain geothermal resources if the water is returned to or reinjected into the same aquifer or reservoir;

NRS 534A.050 Ownership of geothermal resources. The owner of real property owns the rights to the underlying geothermal resources unless they have been reserved by or conveyed to another person.

(Added to NRS by 1983, 2091)

NRS 534A.060 Permit required to drill or operate geothermal well or drill exploratory well; application.

1. A person may not drill or operate a geothermal well or drill an exploratory well without obtaining a permit from the Administrator of the Division of Minerals of the Commission on Mineral Resources and complying with the conditions of the permit.

2. An application must set forth such information as the Administrator requires by regulation.

(Added to NRS by 1983, 2091; A 1985, 1303; 1993, 1701; 1999, 3633)

NDEP regulations relating to Discharge and Underground Injection Control (UIC) permitting:

<http://www.leg.state.nv.us/nrs/NRS-445A.html#NRS445ASec465>

<http://www.leg.state.nv.us/NAC/NAC-445A.html#NAC445ASec810>

Agency Contact Information:



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