WELL DRILLERS — GUIDE

Geothermal drilling and ground loops

Separate a heating loop project from a drinking-water well.

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Start with the system design

The US Department of Energy describes ground source heat pumps as systems that exchange heat with the ground. The system includes an underground collector, a heat pump and heat distribution inside the building. It is a heating and cooling project. Do not assume it provides drinking water.

DOE describes collectors laid vertically or horizontally. Ask the designer which layout suits your land, access and heating and cooling demand. A drilling contractor's quote should fit a written system design. Do not choose a borehole length from a generic house-size rule.

Set the responsibilities

Ask who designs the loop field, drills, installs and tests the pipe, seals the boreholes and connects the heat pump. Request a clear boundary between drilling and mechanical work. Ask which contractor is responsible if the completed system does not meet the agreed design.

For a rural property, provide the locations of the drinking-water well, septic system, utilities and planned farm traffic. Have the designer and authority confirm the layout. Ask how the site will be restored and how the buried pipe route will be recorded.

Check the correct approvals

Minnesota's health department specifically says some borings, including bored geothermal heat exchangers, need permits and written approval before work. That is a Minnesota example. Ask your own well program and building authority which approvals and qualifications apply. A water-well licence does not by itself answer every design or installation question.

Compare like scopes

Request line items for design, drilling, collector pipe, sealing, test records, trenches, internal equipment and commissioning. Ask about access, spoil handling and reinstatement. Confirm what happens if ground conditions force a design change. Do not compare a loop-only price with a complete heat pump installation.

Keep the as-built layout, pressure test results, equipment documents and commissioning report. Ask the installer to show the owner controls and maintenance instructions. Use the drinking-water guides separately for the household water supply. This guide does not estimate savings or claim a tax incentive.

Sources

- US Department of Energy, Geothermal Heat Pumps. Fetched 2026-11-10.
- Minnesota Department of Health, Constructing a New Water-Supply Well in Minnesota. Fetched 2026-11-10.

Frequently asked questions

Does this replace local advice?

No. Confirm the work with the responsible agency and a qualified contractor.