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GEOCHEMISTRY OF THERMAL GROUND WATER IN
SOUTHWESTERN IDAHO

No 60232

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Deuterium and oxygen-18 isotopic data from the geothermal water of the Tertiary Idavada Volcanics in the Salmon Falls Creek basin, southwestern Idaho, suggest that the water is of local meteoric origin. Carbon-13 adjusted carbon-14 analyses suggest that geothermal water in this basin is about 18,000 years old. Estimated reservoir temperatures of geothermal water in the Salmon Falls Creek basin using the H_2SiO_4 -corrected silica-quartz geothermometer range from about 80 to 120 degrees Celsius. Estimated reservoir temperatures using the sodium-potassium-calcium geothermometer ranged from 70 to 125 degrees Celsius. Dissolution of fluorite, anhydrite, calcite, and plagioclase feldspar, oxidation of pyrite, and cation exchange are plausible geochemical reactions that control solute concentrations in geothermal water from the Idavada Volcanics.