

# ARSENIC AND OLD LAKE – SOLVING A GEOTHERMAL MYSTERY

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## **ABSTRACT**

This paper presents a quantitative model that explains the recent increasing trend in arsenic concentration in geothermal water produced from a well supplying a 750 kW (gross) power plant near the saline Honey Lake in California. The cooled water from the plant is discharged on the lakeshore. The model considers fluids stored in, produced from and recharged into the geothermal reservoir considering both geothermal recharge and infiltrating rainfall. The model indicates that the recent increasing trend in arsenic concentration in produced water has been caused by the prolonged drought in the region. The model also indicates that the arsenic level in the produced water will start declining and reach the pre-drought level when the normal rainfall pattern returns. It is concluded that stoppage of production from the well would not eliminate the discharge of geothermal water on the surface because the local hot springs, which have stopped flowing since well production started, would be reactivated.

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