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Northern Calif. residents seek compensation from geothermal owners for seismic activity

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Increasing man-made seismic activity at The Geysers in Northern California has prompted members of two local communities to seek compensation from the owners of geothermal plants operating in the area.

Seismic activity began there in 1969 after the first geothermal plants began commercial operations in the 1960s. Community members say earthquakes have greatly increased in the years since wastewater injection into geothermal wells started in 1997.

Jeff Gospe, a resident of the area, would like the communities to receive a small portion of the \$500,000/year geothermal royalties that currently go to the each of the counties. The money would go into a fund to help homeowners make property repairs. He would also like the geothermal companies to offer free electricity supplies to residents.

Gospe suggested an earthquake ordinance with fees tied to a magnitude 4 event, for example. Magnitude 1.5 is the minimum that can be detected. The fee would go into the community fund, and serve as a financial incentive for the companies to responsibly manage the steam fields.

Gospe said earthquakes previously occurred once a week but now are experienced twice a day. In Anderson Springs, population 350, a survey by the Community Alliance found 170 residents experienced problems ranging from doors not closing properly to cracked foundations.

Calpine Corp. and the Northern California Power Agency, the two major owner/operators at The Geysers, do not see the seismic activity as anything unusual, given that seismic activity is always associated with geothermal resources. A Calpine spokesman said there was even seismic activity around a geothermal production site owned by the California Dept. of Water Resources that is no longer in operation. NCPA's geothermal projects produce about 160 MW, and Calpine, the largest owner/operator at The Geysers, has 649 MW of resources there.

Most seismic activity at The Geysers is at the magnitude level that is barely felt. The largest earthquake experienced at The Geysers was magnitude 4.6 in 1982. However, since 1989, the southern portion of The Geysers in Lake County near two small communities-Anderson Springs and Cobb-has experienced a long-term increase in earthquakes of magnitude above 1.5. This increase was independent of steam injection activity, which declined slightly after reaching a peak in 1986 of about 7 million gallons/day.

A white paper prepared for the Lake County Seismic Monitoring Advisory Committee, and authored by representatives from Calpine, NCPA, the U.S. Geological Survey and Lawrence Berkeley National Laboratory, noted there are no earthquake faults active in The Geysers. Scientists who have studied the area agree that most of the seismic activity has been induced by geothermal field operations and are generally less than a 3.0 magnitude level which is barely felt. An average of about 18 events per year of magnitude greater than 3.0 have occurred, in which pictures move, small objects tip over and doors swing, according to the white paper.

The white paper showed that injections increased to 15 million gallons/day from 7 million gallons/day in 1997 and have eased off since to 11 million gal/day, but seismic activity with magnitudes between 1.5 and 2.5 has continued to increase to about 170 events/year.

Jeff Gospe disputed claims in the white paper that seismic activity over the past six years was apparently not directly related to the injection of wastewater from pipeline operations. He said that there have been three magnitude 4 earthquakes in the past 10 months, whereas in the previous two decades there were only four.

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