

A SURVEY OF POTENTIAL GEOPRESSURED RESOURCE AREAS IN CALIFORNIA

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Keywords:

Geopressured fluid resources, distribution, California

ABSTRACT

This paper presents the initial results of a survey of the occurrence and characteristics of geopressured fluid resources in California using the publicly-available database involving more than 150,000 oil and gas wells drilled in the State. Of the 975 documented on-shore oil and gas pools studied, about 42% were identified as potentially geopressured. Geothermal gradients in California oil and gas fields lie within the normal range of 1°F to 2°F per 100 feet. Except for the Los Angeles Basin, there was no evidence of higher temperatures or temperature gradients in geopressured pools. The porosity of geopressured pools shows the same normal distribution as for normal pressured pools, with a mode in the range of 20 to 25 %. The salinity distribution of both the geopressured and normal pressured pools appear to be bimodal, each with two peak ranges of 0 to 10,000 and 25,000 to 30,000 ppm. Compared to the U.S. Gulf Coast region, geopressured pools in California display much lower water salinities, and therefore, should have a higher solubility for methane. Geopressured pools in California occur in the depth range of less than 1,000 feet to more than 18,000 feet. The modal depth of geopressured pools in California is 2,000 to 4,000 feet, much shallower than that encountered in the Gulf Coast region. The distribution of thickness of geopressured pools is similar to that of normal pressured pools, the majority being less than 250 feet thick. The distributions of the volume of geopressured and normal pressured pools are similar, the modal value being in the range of 1 to 10 billion cubic feet.

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