RECENT CASE HISTORIES OF AUSTIN CHALK SURFACE GEOCHEMICAL SURVEYS: INTEGRATION OF GEOCHEMISTRY, SEISMIC, HORIZONTAL WELL LOGS, AND PHOTOGEOLOGY

By:

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ABSTRACT

Reconnaissance, soil background-normalized radiometric surveys covering large portions of the Austin Chalk play provide generalized favorable areas for further investigation. Typical of the better favorable areas are linear anomalies that are a few thousand feet wide and a mile or more long. They are aligned along the northeasterly-trending set of regional fractures that are clearly discernible on aerial photographs.

Gridded soil gas surveys of the favorable radiometric areas generally reveal fracture trace-aligned trends of low-to-moderate soil gas concentrations. Higher concentrations often occur peripheral to the low-to-moderate trends.

Seismic lines shot at right angles to the northeasterly-trending fractures are processed to provide pseudo-velocity, color sections that show well-defined fracture zones of porosity in the Austin Chalk. Well log data from horizontal boreholes show a direct correlation between the surface geochemical data and the fractures identified by the logs. It can be inferred that the utilization of these seismic, surface-geochemical and photogeological methods makes it possible to predict the presence of hydrocarbon-bearing, vertical fracture reservoirs in the Austin Chalk.

BIOGRAPHY

John Sandy holds BS and MS degrees from Tulane University. He began his career with Humble as a seismic interpreter in 1963. In 1967, John joined Kaiser Exploration where he managed frontier minerals exploration in Australia, New Guinea, and Arizona. From 1972 to 1980, he worked as a uranium geologist for World Minerals and Sun Oil Company. From 1980 to 1985 he worked as a petroleum consultant in Dallas and then formed Geochemical Exploration Services, Inc. where he is currently president and chief geologist.

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