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DR. DON G. BEBOUT

Since mid-1974, Dr. D. G. Bebout has been Principal Investigator of a project financed by ERDA to investigate the potential of producing geothermal energy from the Tertiary geopressured sands along the Texas Gulf Coast. His scheduled presentation summarizes the results of part of this work.

Bebout is presently a research scientist with the Bureau of Economic Geology, University of Texas at Austin.

He received his B.S. degree in 1952 from Mount Union College. Two years later, the University of Wisconsin graduated him with an M.S.. At the University of Kansas, in 1961, he finished work on his Ph.D.

He has been with the Bureau of Economic Geology, University of Texas, since 1972, working mainly with carbonates and evaporites.

For 12 years preceding this, Bebout worked with carbonate facies, environments, and diagenesis for the Exxon Production Research Co. in Houston.



EXPLORATION FOR GEOPRESSURE GEOTHERMAL RESOURCES — FRIO INFORMATION, LOWER AND MIDDLE TEXAS GULF COAST

Exploration methods used in the search for Gulf Coast geothermal reservoirs are identical to those used by the petroleum industry in the search for oil and gas reservoirs. However, the requirements for an economical geothermal reservoir differ considerably from that of an oil and gas reservoir. A geothermal reservoir should be from 50-100 square miles in areal extent and 200-300 feet thick with permeability of at least 20 millidarcies; fluid temperature should be higher than 300°F. A grid of electrical-log cross sections and net-sand and sand-percent maps are the primary tools used in delineating potential geothermal reservoirs meeting these specifications.

The Frio Formation, one of several sand/shale wedges, thickens and dips toward the Gulf of Mexico. The Frio is less than 200 feet thick near the outcrop and greater than 9,000 feet thick in the deep subsurface near the present coast where the top of the formation is deeper than 10,000 feet. Growth faults developed during deposition of the Frio resulting in the accumulation of thick sections of sand and mud on the downthrown side of the fault; these growth faults also isolated sand bodies within thick shale sections, thereby inhibiting movement of fluids out of the sands during loading and compaction. In this manner high-pressure reservoirs were developed. Using micropaleontological markers and major shale breaks, the Frio was subdivided into six correlation units. Sand-percentage and net-sand maps of each unit identify five main depositional environments: fluvial, high-constructive delta, prodelta, strand-plain, and shelf.

This knowledge of the regional sand distribution, along with data concerning distribution of geopressure, subsurface fluid temperatures, and porosity and permeability, is essential in order to evaluate potential geothermal reservoirs in the geopressure zone along the Texas Gulf Coast. These regional surveys delineate prospective areas which merit further, more detailed studies. Several such detailed studies have been completed along the Lower and Middle Texas Gulf Coast.

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- Speaker:** Dr. Don G. Bebout
Bureau Economic Geology
Austin, Texas
- Title:** Exploration For Geopressure
Geothermal Resources—Frio
Formation, Lower and
Middle Texas Gulf Coast
- Place:** Sheraton—Houston Hotel
East Ballroom
- Time:** Wednesday, Sept. 24, 1975
Cocktails: 11:30 to noon, \$1.25
Luncheon: Noon, \$5.00

I will attend and will have _____ guests.

Signed _____