NOON MEETING—SEPTEMBER 30, 1981

ROBERT A. MORTON—Biographical Sketch

Bob Morton is an Associate Director of the Bureau of Economic Geology where he coordinates studies of geothermal energy and unconventional gas resources in Texas. His previous research at the Bureau involved coastal and marine geology and depositional processes. Prior to joining the Bureau in 1972, he was employed by Chevron Oil Company in New Orleans as a petroleum geologist engaged in evaluation of the offshore Miocene trend of south Louisiana. Bob received his bachelors degree from the University of Chattanooga and his masters and doctoral degrees from West Virginia University. He is a member of numerous professional societies including AAPG, SEPM, GSA, and AIPG.

METHANE ENTRAINED IN GULF COAST GEOPRESSURED AQUIFERS (Abstract)

Throughout the Gulf Coast region, substantial quantities of methane are contained within Tertiary sediments that exhibit abnormally high temperature and pressure gradients. The concentration of methane, which occurs as dispersed free gas and as solution gas, is directly related to formation temperature and fluid pressure and inversely related to salinity of formation waters. Multiple tests of geopressured aquifers have yeilded between 20 and 55 scf/bbl of gas composed primarily of methane, but containing substantial quantities of CO_2.

The thickest sandstone reservoirs were deposited near the shelf margin in deltaic and strandplain environments, whereas surrounding thick shales of prodelta, shelf, and slope origin act as permeability barriers that retard migration of fluids. Successful development of these unconventional energy resources depends primarily on the (1) structural and stratigraphic continuity of sandstone aquifers, (2) porosity, permeability, rock compressibility, and drive that together determine reservoir quality, and (3) fluid properties within the reservoir. These factors determine the ability of aquifers to produce large volumes of hot, high pressure fluids at rapid rates for extensive periods of time.