DOUBLE PRESENTATION—APRIL 24, 1985

ERNEST A. MANCINI—Biographical Sketch

Ernest A. Mancini, State Geologist and Oil and Gas Supervisor of Alabama, is a stratigrapher who specializes in the stratigraphy and petroleum geology of the Gulf Coastal Plain.

Dr. Mancini was educated at Albright College, Reading, Pennsylvania, (B.S., Biology, 1969); (Ph.D., Geology, 1974). Employed as an exploration geologist by Cities Services Company from 1974 to 1976, he worked on both the onshore and offshore areas of California and Alaska.

He has been a member of the Department of Geology at the University of Alabama since 1976, where he teaches graduate courses in petroleum geology and paleontology. The author of numerous publications, he has explored several areas of interest, such as the petroleum geology of Alabama and the stratigraphy and paleontology of Texas, Alabama, and Alaska.

Dr. Mancini is listed in American Men and Women of Science and Who's Who in Technology Today. He is a member of Phi Kappa Phi, Sigma Xi, Society of Economic Paleontologists and Mineralogists, American Association of Petroleum Geologists, Alabama Geological Society, Association of Gulf Coastal Plain Geologists, and International Geologic Correlation Program.

In the spring of 1981, Dr. Mancini was awarded the prestigious A. I. Levorsen Memorial Award and first place for Best Paper by the Gulf Coast Association of Geological Societies for his paper on the petroleum geology of southwest Alabama.

NORPHLET FORMATION (UPPER JURASSIC) OF SOUTHWESTERN AND OFFSHORE ALABAMA: ENVIRONMENTS OF DEPOSITION AND PETROLEUM GEOLOGY

Upper Jurassic Norphlet sediments in southwestern and offshore Alabama accumulated under arid climatic conditions. The Appalachian Mountains of the eastern United States extended into southwestern Alabama to provide a barrier for air and water circulation during the deposition of the Norphlet Formation. These mountains produced topographic conditions that contributed to the arid climate, and they also affected sedimentation. Norphlet paleogeography in southwestern Alabama was dominated by a broad desert plain rimmed to the north and east by the Appalachians and to the south by a developing shallow sea. The desert plain extended westward into eastern and central Mississippi.

Initiation of Norphlet sedimentation was a result of basin subsidence accompanied by erosion of the southern Appalachians. Norphlet conglomerates were deposited in coalescing alluvial fans in proximity to an Appalachian source. The conglomeratic sandstones grade downdip into red beds which accumulated in distal portions of alluvial fan and wadi systems. Quartz-rich sandstones were deposited as dune and interdune sediments on a broad desert plain. The source of the sand was updip and adjacent alluvial fan and plain and wadi deposits. Wadi and playa lake sediments also accumulated in the interdune areas. A marine transgression was initiated during the late phase of deposition of the Norphlet Formation resulting in the reworking of previously deposited Norphlet sediments.

Norphlet hydrocarbon potential in southwestern and offshore Alabama is excellent; six oil and gas fields already have been established. Petroleum traps discovered to date are primarily structural traps involving salt anticlines, faulted salt anticlines, and extensional fault traps associated with salt movement along the regional Pollard-Foshee fault system. Reservoir rocks consist primarily of quartz-rich sandstones which are eolian, wadi, and marine in origin. Porosity is principally secondary (dissolution) with some intergranular porosity. Smackover algal carbonate mudstones were probably the source for the Norphlet hydrocarbons. Jurassic oil generation and migration probably was initiated in the early Cretaceous.