INTERNATIONAL EXPLORATIONIST GROUP EVENING MEETING—MAY 20, 1987

ARLIN C. HOWLES, JR.—Biographical Sketch

Arlin C. Howles is a hydrogeologist with ERM-Southwest, Inc. in Houston, Texas. He is actively involved in the investigation and remediation of various environmental problems within the Gulf Coast region. He is the current Environmental Committee Chairman of the HGS and is involved with introducing topics that illustrate the geologist's role in addressing environmental problems. He is a member of the AAPG and the National Water Well Association.

Arlin received his B.S. degree in Earth Sciences in 1981 from Edinboro State University in Pennsylvania, and his M.S. degree in Geology from the University of South Carolina. During his graduate studies, he worked as a Research Assistant at the Earth Sciences and Resources Institute, where he was involved with regional studies and basin analyses of several Indonesian basins for Aminoil International in Houston. He has authored a paper detailing the geology of Southwest Sumatra and the Sunda Strait, which was presented at the 15th annual Indonesian Petroleum Association convention in Jakarta, Indonesia. He has also coauthored several environmental articles, coedited a fieldtrip guidebook for the environmental committee and serves as an editor for the Environmental Update Column in the HGS Bulletin.

STRUCTURAL AND STRATIGRAPHIC EVOLUTION OF THE SOUTHWEST SUMATRAN BENGKULU SHELF

Seismic stratigraphic interpretation techniques were used to document the structural and stratigraphic evolution of the southwest Sumatran coast (Bengkulu shelf) between 4°00′ and 5°00′ S latitude. A Paleogene basinal area located under the Bengkulu shelf which, had previously been interpreted as a marine embayment, is re-interpreted in this paper as a continuation of the south Sumatran graben system.

A large, northeast-trending, high basement block with an adjacent graben to the east are the prominent structural features. The western side of the graben has been downdropped by a series of high-angle normal faults. Extension began during the Paleogene and was controlled by the same tectonic mechanisms that influenced the Eocene rift basins in the Sumatran back-arc area. Over 10,000 feet of Paleogene sediment, similar in composition to the Paleogene section of south Sumatra, accumulated in the rapidly-subsiding graben. The mid-Oligocene unconformity truncates the basement high and signifies a possible change in the tectonic configuration of the region. A key aspect of this change was the switch of rapid subsidence from the east side of the basement high to the west side with the formation of the present Sumatran forearc basin. Right-lateral slip along the Sumatran fault began during the middle Miocene with the onset of the collision of the Australian-Indian plate with the Asian plate. Restoring the approximately 100 kilometers of offset along the Sumatran fault causes this graben to line up with the Benekat Gully in the south Sumatra basin.

After the mid-Oligocene unconformity truncated the uppermost graben fill sequences, the first Neogene transgressive cycle began with the deposition of the Early Miocene Baturaja carbonates. The middle Miocene Parigi carbonate serves as a boundary between previously deposited fine-grained siliciclastic sediments and a younger regressive sequence of deltaic deposits. Erosion of the Barisan Mountains to the east, provided the sediment load necessary to build a series of Plio-Pleistocene deltaic/slope deposits which prograded onto the eastern flank of the Sumatran forearc basin.