LUNCHEON MEETING—MAY 30, 1979

BRIAN E. O'BRIEN—Biographical Sketch

Brian E. O'Brien received a B.S. in Geology from the University of Oklahoma in 1958. After working a short period in the oil fields of South Texas, he returned to the University of Oklahoma, receiving an MS in Geology in 1963.

He began his professional career on an Atlantic Refining Company seismic crew in 1961. In 1962 he was transferred into the geological department as a geologist and assigned to the Houston district working in offshore Louisiana and the Texas Gulf Coast. During this time he was responsible for Atlantic becoming active in the High Island Area of offshore Texas as well as the Cretaceous trend of Southeast Texas.

In 1969 he joined Mesa Petroleum Company as a Senior Geologist in the Gulf Coast and was responsible for Mesa's exploration efforts along the Texas Gulf Coast.

In 1973 O'Brien resigned from Mesa and entered into the Sanchez-O'Brien Petroleum Group joint venture. In 1976 Sanchez-O'Brien Petroleum Corporation was formed with O'Brien owning one-third of the company. The Sanchez-O'Brien Petroleum Corporation is a privately owned independent oil and gas exploration company. The company is most active in the Texas Gulf Coast, with additional holdings in Oklahoma, Louisiana, New Mexico, Colorado, Idaho, Wyoming, Kansas and Nebraska. The Corporation has major offices in Houston and Laredo, and exploration offices in Corpus Christi, Texas; Bakersfield, California; and Denver, Colorado.

He is active in real estate in the Houston area, owns ranches in Maverick, Walker and Waller Counties plus undeveloped acreage in Harris and Maverick Counties. He owns a heavy equipment leasing company and has an interest in a construction company and a Laredo newspaper.

O'Brien is a member of the Houston Geological Society, Corpus Christi Geological Society, American Association of Petroleum Geologists, American Association of Petroleum Landmen, American Petroleum Institute, Texas Mid-Continent Oil and Gas Association, Texas Southwest Cattlemens Association, O. U. Alumni Club of Houston and O. U. Board of Visitors.

LOBO TREND OF SOUTH LAREDO AREA, WEBB AND ZAPATA COUNTIES, TEXAS (Abstract)

Located deep in the South Texas brush country 140 mi. west of Corpus Christi is the Lobo trend of the South Laredo area. Since its discovery in late 1973, 350 to 400 wells have been drilled with an estimated 75% success ratio.

The producing area is still not delineated and continues to expand eastward and southward across an indicated productive area covering 500,000 to 600,000 acres in Webb and Zapata Counties. This region has been intensely surveyed by seismic crews and is mostly leased or held by production. It is expected to remain so for the foreseeable future.

The Lobo trend is believed to be one of the most complex geologic provinces in the entire Gulf Coast region. At least one angular uncomformity is known to exist; others are suspected. The major reserves occur beneath the angular unconformity. One or more periods of intense faulting and structural activity occurred prior to the angular unconformity and an additional period of faulting occurred subsequent to the erosion and later deposition. The geology has been complicated further by more recent regional gulfward tilting and faulting which affected the Lobo section as well as the overlying Middle and Upper Wilcox sediments. Production in the Lobo trend is from a series of geopressured, low-permeability, Lower Wilcox sandstones at depths ranging from approximately 4,400 ft updip in Mexico to nearly 12,000 ft downdip toward the east in Zapata County, Texas. The producing sequence is marked at the top by geopressured Lower Wilcox shale and at the base by the occurrence of Vaginulina robusta, a Midway foraminiferal marker fossil. Individual sandstones in the series attain maximum thicknesses of nearly 300 ft and contain few water contacts. Porosity and permeability ranges of 15 to 24% and 10 to 40 md respectively, are common for producing sandstones.

Trapping conditions are believed to be provided principally by counter-regional, westward-tilted fault blocks bounded by northwest-southeast striking, down-to-coast normal faults. Lateral seals most commonly appear to be due to shale-out, permeability barrier, or local closure. Displacements across the faults are commonly as much as 700 to 1,000 ft. Since the stratigraphic sequence containing the major producing zones is typically no more than 1,000 ft. thick, the exact location of a large fault becomes critical in certain areas, a problem most accurately solved when adequate seismic data and well control are available.

As of this date, approximately 5 years after completion of the No. 1 Clark discovery well, reserves for the area are still impossible to determine. It is probable that at least 1 Tcf of gas is recoverable, with 75% of it in Texas and as much as 3 Tcf recoverable is not unlikely. Development of the trend is expected to continue through the next 3 to 5 years with as many as 50 new exploration and development wells being drilled each year. Perhaps then a reasonably accurate estimate of ultimate recoverable gas can be made.

Drilling and completion techniques for Lobo wells generally consist of setting protective casing near the top of the geopressured zone (which may be accurately predicted by a competent mud logger), then drilling to total depth, and logging and running liner from total depth back to protective casing.

Until early this year freshwater-base drilling muds were used by all operators; however oil-base mud is now being used by one operator.

The logging program most commonly consists of the ISF/sonic, the compensated neutron-formation density, and the dipmeter. Sidewall cores are routinely taken but production casing or liner is usually run on the basis of favorable electric-log data. Only limited conventional coring has been attempted.

Several wells have flowed naturally at initial daily rates of 500 Mcf up to 6,000 Mcf with a few exceptional wells

flowing at much higher rates. However, sustained commercial production is dependent on successful stimulation consisting of light acid treatment and heavy fracturing.

The average 9,000-ft. Lobo test costs approximately $800,000 to drill and complete. Dry-hole cost is approximately $600,000. Recoverable gas reserves per well are expected to average 4 to 6 Bcf, worth $8,000,000 to $12,000,000 at the area intrastate price of approximately $2.00/Mcf.