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New Approach to Dipmeter Computation

The Superior Oil Company has developed a simple electrical network analog instrument to calculate dip and strike from the Schlumberger continuous dipmeter logs. A new version of this instrument is described that is designed specifically for the CDM-P (poteclinometer) logs and it can be used with hole deviations of up to 36°.

Every control on this instrument corresponds with one of the recorded parameters of the dipmeter log. It is thus easy to see the effect of any one parameter on the resolved dip and strike. The instrument requires no elaborate training in procedure, is portable, and can therefore be used at the well site if necessary, to make on-the-spot decisions about further drilling operation after a dipmeter log has been run.

The rapidity with which the computations can be made also permits a larger number of levels to be computed. This frequently results in more accurate information and a considerable saving in computation expense.

MARVIN A. BUSKALA, Superior Oil Company, Casper, Wyoming

Brooks Ranch Oil Field, Natrona and Converse Counties, Wyoming

The Brooks Ranch field is a stratigraphic-type oil field in T. 33 N., R. 77 W., Natrona and Converse counties, Wyoming. Field production is from the Upper Cretaceous Second Frontier sandstone. The sandstone thins eastward to a wedge-edge from a gross thickness of 25 feet at the western margin of the field. The oil accumulation is controlled by an anticlinal axis which intersects the stratigraphic thinning. The productive area of the field will exceed 3,000 acres.

The average permeability of 5 millidarcys is low, whereas the porosity ranges between 18 and 20 per cent. Initial production varies considerably from well to well, averaging about 100 barrels of oil per day per well. The discovery well drilled by Dan C. Morton in March, 1957, is located in the SE., SE., SE., Sec. 9. The field now has 50 producing wells.

JOHN N. DAHM, El Paso Natural Gas Company, Salt Lake City, Utah

Desert Springs Gas Field, Sweetwater County, Wyoming

The Desert Springs gas field in central Sweetwater County, Wyoming, is gas and distillate productive from four zones in two Upper Cretaceous formations. The field exhibits stratigraphic traps on the regional dip of the west flank of the Red Desert-Great Divide basin.

The uppermost productive zone is a sandstone in the Lewis shale, and it appears to be a northward trending offshore bar.

The upper two-thirds of the Almond formation of the Mesaverde group have been zoned, in descending order, into five zones—of which the upper three are productive.

The trap in zone II is a result of a westward (updip) lateral facies change from sandstone into relatively impermeable, finer-grained clastics. The trap in zone III seems to be due to an updip wedge-out of the productive sandstone. Another wedge-out (southward) is indicated in zone IV which is, as yet, not productive. Both wedge-outs are thought to be beneath unconformities.

In summary, the Desert Springs gas field provides an excellent opportunity to study three of the main stratigraphic-type traps: offshore bar, lateral facies change, and wedge-out below an unconformity.

RALPH W. EDIE, Consultant, Calgary, Alberta

Bellshill Lake—Thompson Lake Cretaceous Oil Fields, Alberta

The Bellshill Lake oil field, located in east-central Alberta, was discovered in 1956. The field represents a stratigraphic trap formed by updip (northeast) shale-out of a highly porous and permeable quartz sand within the Lower Cretaceous Mannville formation. A detailed lithofacies map of a 50-foot thick slice (including the productive unit) parallel with an overlying marker bed shows: (1) the updip limit of the productive sand is irregular, and (2) ridges of sand are built up on the upper surface of the main sand body and are responsible in part for maximum pay thicknesses. The field is overlain by a gas cap and underlain by water. The maximum oil pay thickness is 50 feet. Approximately 3,000 acres have been developed to date and primary recoverable reserves are estimated at 40 million barrels of 27° gravity (API) oil.

The Thompson Lake field discovered in 1958 is a similar but smaller field and lies on trend southeast.

A new technique for determination of net permeable sand (in sand-shale sequences) from electric logs is presented. The technique involves: (1) analysis of drill-stem test and lithologic data, and (2) construction of a graph to correct the amplitude of the self potential (SP) curve for various mud resistivities.