

DISCUSSION

Source of Sample

The subsurface gas was obtained on August 14, 1970 from the Pelican No. 2 in a Schlumberger segregator cylinder during FIT Test 1, Run 1 at 9447 ft. KB (9347 ft. sub-sea). All of the sample was transferred by water displacement into four shipping cylinders. The reported reservoir pressure and temperature were 4316 psig and 246°F, respectively.

Objectives of Laboratory Work

The objectives of the laboratory work performed on the subsurface gas sample were:

1. To determine the composition of the subsurface gas sample.
2. To determine the dew point of the subsurface gas sample at the reservoir temperature of 246°F.
3. To obtain depletion type K-value check points for the sample at several pressures below the dew point pressure

Laboratory Determinations

1. The contents of the four shipping cylinders were transferred into a common cylinder and the contents were heated to 246°F. The pressure on the contents of the heated cylinder was then increased and displacements of portions of the sample were made at 5000 psig to the low temperature fractionation equipment and to the windowed cell. A composition of the sample from methane through pentane was obtained. The hexane-plus liquid was reanalyzed to yield fractions for hexanes, heptanes, octanes, nonanes, and decane-plus. The results of this analysis are shown in Table I. Mol weights and densities were measured on each fraction.

2. Measurements of the volumes of equilibrium gas and liquid were made at several pressures on the portion of sample in the windowed cell. By extrapolation of a plot of percent liquid volume versus pressure and visual observation of the disappearance of the last trace of liquid, the dew point pressure of 4320 psig at 246°F was determined. The results of this work are shown in Table II.