PRELIMINARY EVALUATION OF MIocene LITHOSTRATIGRAPHY IN THE POINT CONCEPTION COST WELL
OCS-CAL 78-164 NO. 1, OFF SOUTHERN CALIFORNIA

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ABSTRACT

Evaluation of cuttings from the Point Conception deep stratigraphic test well suggests that the top of the Monterey Formation as defined in onshore sections is at an approximate drilled depth of 5700 feet. Cuttings from the 1000 feet above this level, interpreted as the Sisquoc Formation, are siliceous mudstone and minor porcelanite that average 30% diagenetic silica and have a silica/detritus ratio of about 0.6. Cuttings between 5800 and 6700 feet average 40% diagenetic silica with a silica/detritus ratio of about 1.0 and are mainly porcelanite with some siliceous mudstone and chert and minor dolostone, lithologically correlating with the clayey-siliceous member (Santa Barbara coastal area) or the arenaceous zone (Santa Maria basin) of the Monterey Formation.

In contrast to the top of the Monterey Formation, which is not strongly marked seismically, a series of well-defined seismic reflectors are present within the formation. The uppermost of these reflectors, reported at a drilled depth of 6760 feet, is close to the lithologic boundary between sparsely carbonate-bearing siliceous rocks and the underlying carbonate-bearing siliceous sequence, a boundary corresponding to the top of the upper calcareous-siliceous member (Santa Barbara coastal area) or the cherty zone (Santa Maria basin) of the Monterey Formation. Strata in the interval 6800-7400 feet are distinctly cherty, contain moderately abundant disseminated carbonate (15-20%), and average 55-60% silica and 15% detritus, with a silica/detritus ratio of about 3.7. Underlying strata in the interval 7500-8000 feet, by contrast, are much more sparsely siliceous (mean 27%) and contain more abundant detritus (mean 30%) and carbonate (mean 38%); this interval is lithologically similar to the carbonaceous marl member (Santa Barbara coastal area) or the bentonitic-brown and buff-and-brown zones (Santa Maria basin) of the Monterey Formation. Underlying strata to depths of at least 9400 feet, in which silica is more abundant than carbonate, probably correlate lithologically with the lower calcareous-siliceous member of the Monterey Formation (Santa Barbara coastal area) and the Point Sal Formation (Santa Barbara coastal area).

Figure 1. Physiographic diagram of a part of central and southern California in oblique view (after Alpha, 1970), showing location of the Point Conception COST well OCS-Cal 78-164 No. 1.