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THE MONTEREY FORMATION AT SOUTH ELLWOOD FIELD, SANTA BARBARA CHANNEL, CALIFORNIA

At South Ellwood, the Monterey Formation is ~1200ft thick and at the transition between Opal CT and quartz phase. The formation has been subdivided into 7 major and 10 minor zones based on gamma-ray log response. The low gamma-ray zones correspond to porcelanite, chert, and dolostone and are typically more fractured than the high gamma-ray zones which correspond to organic-rich shales. This zonation provides a means for detailed correlation and structural interpretation. The field is a faulted anticline with a large normal fault along the north flank. A thrust fault repeats the very top section of the Monterey across the western part of the field and additional thrust and reverse faults slice the anticline to the south. The Monterey formation began production in 1969 when well 3120-8 began to flow 2100 BOPD of sour oil. Since then the Monterey has been developed by 27 wells. In 2002 Venoco drilled the 3242-7-2 well out to the eastern part of the field and ran modern log suites including Formation Micro Imager, dipole sonic, and production logs. Production logs and pressure build-up surveys were run in several additional wells. These new data were collected in order to better understand questions which have plagued operators of Monterey fields. Just how does fracturing control production? What is the nature of the oil/water contact? What is the effective porosity/oil volume of the field? Fracturing of the Monterey Formation and structural details revealed by the new log and reservoir pressure data in conjunction with earlier data has led to a better understanding of the main flow units and enabled us to prepare a detailed structural model of the field.