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**Analysis of Low Permeability Intervals in a Heavy-Oil Braided Stream Deposit Using a Combination of Core and Log Analysis, Kern River Field, California**

The Kern River field is located in Kern County, California immediately adjacent to the city of Bakersfield. This giant oil field has produced over a billion barrels of 12 degree API gravity crude during the last 100 years from a Mio-Pleistocene braided stream deposit. Estimated reserves are still substantial. Daily production of over 100,000 BOPD places this field in the top five producing fields in the country. Reductions in reservoir quality due to lower permeability siltstones and minor amounts of clay are leaving unproduced pockets of reservoir rock with residual oil saturations 10-30 saturation units higher than the adjacent rock with higher permeability. An attempt to produce the oil has been marginally successful. Much of the lower quality reservoir rock is already heated to 220 degrees (F) or greater and shows no sign of draining. A study is underway to determine if the lower permeability rocks could be accessed with short laterals drilled as spokes from the central steam injector in each five- or nine-spot pattern to introduce steam and pressure directly into these intervals thereby inducing the hydrocarbon to migrate into the better reservoir rock where it may be produced; or to use the laterals as producing wells and attempt to drain the low permeability reservoir rock from a horizontal well which will contact more of the reservoir. 70 cores taken over the last 20 years are being reviewed, along with core photographs, wireline logs and 3-D models, to determine how extensive the targets are for a pilot project.