

Yeats, Robert S. (Earth Consultants International, Corvallis, OR)

WHY ISN'T THE SAN GABRIEL BASIN A MAJOR OIL PRODUCER?

The San Gabriel Basin (SGB) is underlain by organic Monterey Shale that has produced oil shows and the Lapworth Oil Field near Whittier Narrows. Why doesn't it have giants like Montebello Oil Field, on its border with LA Basin?

Like many LA fields, Montebello produces oil from turbidite sand reservoirs capped by siltstone and localized by syndepositional anticlinal folding. Delmontian turbidites at Montebello are downcurrent from coarse-grained Sycamore Canyon Formation in the western Puente Hills. This grades northwestward to fine-grained strata in the SGB that are overlapped unconformably by shallow-marine Pliocene Fernando Formation. Overlying these transgressive strata are the largely-nonmarine Duarte sandstone and conglomerate, the equivalent of most of the Repetto and Pico members of the Fernando in the LA Basin. The SGB lacks syndepositional structures between the East Montebello fault and the Walnut Creek fault, despite the Montebello and Elysian Park anticlines farther west and the Walnut and San Jose anticlines farther east. The Alhambra High, where Mohnian overlaps middle Miocene to rest on basement, apparently does not contain reservoir-quality sands.

The eastern and northern margins of the basin are largely undrilled and may contain undiscovered oil fields, although geophysical prospecting for oil through the Duarte Conglomerate poses a challenge. The footwall block of the Sierra Madre reverse fault and both sides of the Raymond fault are undrilled. Objectives are late Miocene turbidite fans equivalent to the Tarzana and Puente Hills fans adjacent to the basin on the west and east, respectively.