4 mi north of the Arkansas-Louisiana border in Columbia and Lafayette Counties, Arkansas. The trap is provided by the northern limit of a Smackover oolite facies which changes to equivalent Buckner shales and fine-grained limestones. The geologic model proposes that additional bar units, of slightly older geologic age, could be developed farther updip.

A new 7-mi (11 km) seismic line was recorded north-south across the field. Two displays of conventionally processed seismic data define a subtle amplitude feature at the apparent Walker Creek field limits. One seismic display contains data with a 10-55-Hz filter, and a broader band section, containing 0-110-Hz data, certainly adds to the trap definition.

Seislog (trademark of Teknika) inversion of these seismic data and detailed correlation of sonic logs to the Seislog line provide further definition of the facies geometry creating the amplitude feature. Definition of the updip limit of the 100 ft (30 m) of producing Smackover oolite is offered on the inverted seismic traces from 10,800 ft (3,292 m; 2.1 sec).

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Land Development and Faulting Near Houston, Texas

Once a developer acknowledges the possible presence of faults on his land, he needs to consider such questions as their reality, location and extent, and likely rate and amount of movement. The final answers to these questions commonly must come from the subsurface, where they may be obtained by drilling a series of boreholes, 150 to 500 ft (45 to 150 m) deep. These are logged for electric spontaneous potential, and for resistivity using a single-point electrode to obtain maximum bed resolution and character. The borehole method has the advantages of economy, speed, and reliability; it can be done almost everywhere; and the electric logs provide a permanent, objective record of the strata penetrated. Airphotos, 1-ft (0.3 m) contour-interval topographic maps, and field inspection are useful guides in determining locations for boreholes for maximum efficiency. The subsurface information enhances the accuracy of the surficial methods.

The client's reaction generally depends on whether he is siting an industrial building or developing residential lots. Industrial builders usually are very concerned about exact choice of location, and plan carefully taking the faulting into consideration. However, land developers have a very wide range of reactions, and even the most responsible lack flexibility for much replanning because of prior commitments to major thoroughfares, etc. Although the presence of faults frequently delays full development of a tract, it does not seem to prevent it. Where one operator drops his option because of faulting another (ignorantly?) will come along and build. Also, a few large (but low) buildings have been designed and constructed knowingly over fairly active faults, and certainly many more have been built unknowingly.

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Quaternary Fault Activity in Texas Gulf Coast

Normal faults that offset Quaternary sediments fringing the Gulf of Mexico are best known in the vicinity of Houston, but have been recognized from east of Baton Rouge, Louisiana, to the Mexican border—a distance of nearly 1,100 km. Throughout this large area, scattered faults 1 to 20 km long are active—a term that is here limited to faults whose movements have damaged man-made structures. High-resolution shallow seismic lines across selected faults demonstrate that scarps mapped at the surface represent only the most recent displacements along faults that persist to depths in excess of several hundred meters and show evidence of continued Quaternary movement. Additional data support the general conclusion that observed scarps are the surface expressions of both Tertiary growth faults and faults associated with the intrusion of salt domes.

Current fault activity is probably related to both natural and man-induced factors. Topographic maps based on 1915-16 surveys provide direct proof that some faults had already displaced the land surface before large-scale fluid extraction had significantly altered the stress state within shallow subsurface sediments. This and additional evidence suggest that natural faulting of the land surface was characteristic of the Quaternary history of much of the Gulf Coast, and locally may be continuing. In general, however, natural rates of fault motion are probably so low as to be of little consequence to man. Damage resulting from current fault motion is more likely attributable to widespread extraction of subsurface fluids. Several observations suggest that most offset of the land surface in the heavily pumped Houston area has taken place only within the last few decades: (1) few scarps are evident on early topographic maps; (2) faults are more visible on recent (1970s) aerial photographs than on photographs of comparable scale and quality taken in 1930; and (3) present rates of fault creep are far in excess of average prehistoric rates of land-surface offset.

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Handil Field, East Kalimantan, Indonesia

Handil field is located in the swamp area of the present delta of the Mahakam River in East Kalimantan, Indonesia, in the central part of the Tertiary Kutei basin. The anticlinal feature was found by seismic work in 1973, the discovery well being drilled in April 1974.

An east-west fault perpendicular to the axis of the anticline (10.5 km long, 4.5 km wide) divides the field into two blocks of equivalent area. Areal closure is 35 sq km. Vertical closure increases with depth through the hydrocarbon-bearing section. Most of the 120 reservoir sands between 500 and 2,900 m are tidal to fluvial delta-plain sediments (middle to late Miocene). Most of them are oil bearing with a gas cap. Their types of deposition can be identified as channel fills, offshore bars, etc.

A high pressure zone is encountered below 2,900 m, where deeper prospects remain for investigation. More than 50 significant markers (lignite, carbonate streaks) are used to correlate the sand bodies. Vertically, the field has been divided into six zones corresponding to