PACIFIC SECTIONS, A.A.P.G., S.E.P.M., AND S.E.G., LOS ANGELES, NOVEMBER 3–4, 1960. ABSTRACTS

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La Honda Oil Field, San Mateo County, California

The La Honda oil field is located in San Mateo County in the Santa Cruz Mountains. The discovery well of the Eocene pool was the Neaves-Union Lane No. 2, completed in October, 1956, from the interval 1,728–1,741 feet, with production coming from the Butano sandstone of Eocene age. Initial production flowing was 90 b/d, 15% cut, 32.8°, 50 mcf. The pool extent was delineated rapidly with the drilling of six additional flowing wells, some of them whipstocked.

The best well in the pool was completed flowing with an initial production of 750 b/d, clean 32.8° oil through an open bean. At peak production the pool was producing 900 b/d under restricted choke. There is approximately 20 acres of accumulation. As of October 1, 1960, the field has produced an approximate total of 460,000 bbls. net oil and has a present daily rate of 225 bbls. net oil.

The surface geology is a westerly dipping monocline in the exposed Purisima (Pliocene) beds. The producing structure is anticlinal under the Pliocene unconformity with no surface evidence of this hidden fold. The discovery was based on the dipmeter results and stratigraphy of the Neaves-Union Lane No. 1 well.

The stratigraphic section in the field consists of the Purisima, San Lorenzo, and Butano formations.

Thirteen additional wells, all dry and abandoned, have been drilled in the immediate area by Neaves-Union, as well as other operators. The information from these wells show the accumulation to be at the very top of a large anticlinal structure hidden beneath the Purisima.

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San Emidio Nose Field, Kern County, California

Twenty-five years ago the first deep wildcat well to explore the large subsurface San Emidio anticline was abandoned, with no promising indications of commercial oil production. Anticipated upper Miocene reservoir rocks continued to elude five more exploratory efforts during the ensuing twenty-three years. Reef Ridge sands were found to be thin or not present, and Stevens sands generally silty and impermeable. First commercial Reef Ridge production was proven in July, 1958, when Richfield Oil Corporation K.C.L. "H" No. 34-9 was completed flowing 350 b/d clean 30° gravity oil and 46 mcf gas through a 12/64″ bean from the interval 11,451–11,558 feet. Development of the H-33 pool commenced with completion of K.C.L. "H" No. 83-9 at a rate of 440 b/d clean 31° gravity oil and 50 mcf gas through an 8/64″ bean from the interval 12,702–12,838 feet. Current daily production from both zones in twenty-two wells is about 7,000 b/d gross.

Characterized by a lack of structural complexity, the area has several well defined lithologic units that record contrasting environments of sedimentation. Overlying and sealing the stratigraphically closed Reef Ridge reservoir sand is the impervious, well bedded Reef Ridge shale, youngest Miocene formation present. Gross lithologic characteristics allow subdivision of the Reef Ridge sand interval into an upper member of massive, moderately sorted, contiguous sands and a lower member of poorly bedded, generally less permeable sands. Between Reef Ridge and H-33 sands is 300 feet of impermeable upper Mohnian siltstone. H-33 reservoir sands are fine-grained, moderately to well sorted and divisible into an upper series of thin-bedded lenticular sands and a lower massive unit.

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Some Preliminary Gravity Results in Imperial Valley

Measurements of gravity have been obtained across the axis of the Imperial Valley province both in the United States and Mexico with a Worden gravimeter. Some preliminary results indicate a 10 mgal Bouguer anomaly low in the vicinity of El Centro and a steep gradient of about 6 mgals/mile toward the west side of the Imperial Valley. The data are discussed in relation to the major structural features of the region, and the machine computation techniques of reducing and analyzing the data are presented.

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Hammer, Brunton, and Helicopter

The helicopter has become a field tool equal in importance to the hammer and Brunton compass. The geologist by conventional means averages 75 to 99% of his time getting from one outcrop to another. Using a helicopter, he may spend nearly 100% of his time on the outcrop or in an incomparable grandstand seat. Despite daily costs averaging ten times those of conventional methods, the total cost (or cost per square mile) of a helicopter survey will in most cases be a half to a tenth that of a conventional ground survey. The intangible benefit of the method is higher quality because of the continuing ability of the geologist to see details accurately in relation to the overall picture.

For a successful exploration program, advance planning is essential, including selection of the helicopter operator, logistics and safety precautions. Perhaps more essential is geological planning. First, the geologists should be the most experienced men available. Second, advanced preparation should include, at the minimum, some kind of overall reconnaissance perhaps by helicopter or fixed-wing aircraft, but the desirable (and least costly) method is a complete photo-geologic study.

Field methods fall into two classes: "fly-mapping," where exposures are good and only occasional landings are necessary for ground checks; and support work where the helicopter is used to transport the geologist to and from the ends of ground traverses. Various combinations are adaptable so long as the program has utilized prudent advance planning and allows vital "office-mapping" to keep up with the progress of the field work. These methods have reached their greatest development in the tremendous field programs in Alaska and Canada, but the resultant savings in cost and increase in quality of work are just as possible and desirable on small jobs in our own backyards.

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Effects of Foreign Imports on Domestic Exploration as Related to Independent Producer

Imports of petroleum, a commodity on which the very existence of this country depends, should never reach such a point that they discourage domestic ex-