MINE-ASSISTED MOBILE OIL RECOVERY CRANE AND ECTOR COUNTIES, TEXAS

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ABSTRACT

The symposium theme "Advances in Technology" can mean extension of thought into new concepts or it can mean new application of existing, standard, practice and equipment. The petroleum and mining industries are well advanced both in concepts and available equipment. However, there has been a failure in communication between these two industries. The petroleum people do not realize what the mining industry can do, and the mining people do not realize the potential open to them in the petroleum industry.

Mine-assisted recovery of mobile residual oil is feasible in the extensive San Andres/Grayburg fields of Crane and Ector Counties, Texas. The extensive use of infill drilling in the past attests to the concept that closely spaced wells in these areas will recover additional oil. Even so, the average expectable recovery is 26% percent of the original oil in place. The depth to these reservoirs precludes economic drilling of wells on one acre or closer spacing. Such spacing for wells 300 to 600 feet deep, drilled from below the reservoir would be economiclly feasible.

U.S. patents #4,458,945 and #4,595,239 describe a system and equipment whereby wells can be drilled from below into an oil-bearing reservoir that is still under pressure. Access ways, roughly 10 feet high and 15 feet wide, are driven in competent rock 100 feet or so below the producing horizon. These entries driven on approximately 880 foot centers under the entire reservoir, provide the drill sites for closely spaced wells. The patented well head assembly will permit continuous flow of all drill cuttings and produced fluids through a closed pipeline system to be discharged at the surface. Well casings can be cemented into place with the well completed as directed by petroleum engineers. Since wells will be drilled with water with no formation of mud cake on the borehole walls, optimum cementing of the casing should be possible with no blinding of the producing horizon.

Depending upon the expected recoverable oil per acre, production costs of $5.00 per barrel or less should be possible. Spoil produced from driving the mine workings can be used as gravel and road base if the workings are in a competent stratigraphic unit as would be expected from these fields. This should provide a profitable solution to environmental objections.

As soon as the mine shafts are completed and passageways are 300 or 400 feet out from the shaft, mining, well drilling, and well production could continue simultaneously providing an early and continuously increasing cash flow.

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