

This Calendar Item No. 32  
was classified as Minute Item  
No. 32 by the State Lands  
Commission by a vote of 2  
to 0 at its 8/25/77  
meeting.

INFORMATIVE CALENDAR ITEM

8/77  
WMT

32.

REVIEW OF PILOT SCALE DEMONSTRATION OF MICELLAR-POLYMER  
WATERFLOODING TECHNIQUES FOR ENHANCED OIL RECOVERY,  
WILMINGTON OIL FIELD, LOS ANGELES COUNTY

The State Lands Commission, at its meeting of July 22, 1976, approved a request by the City of Long Beach to enter into a cost-sharing contract with the Federal Energy Research and Development Administration (ERDA), to conduct a pilot scale demonstration of micellar-polymer waterflooding techniques in the prior development portion of the Wilmington Oil Field.

Under the terms of the contract with ERDA, the City and the Federal Government have agreed to share the total estimated cost of \$7 million on a 50/50 basis. Total project expenditures were \$463,000 through June 30, 1977. The total Federal obligation is limited to \$3½ Million, and the Federal Government does not share in any of the oil revenue produced from the pilot demonstration.

Presently, the design of the micellar-polymer plant is nearly complete. Equipment requiring a long lead time has been ordered and tanks for the plant have been acquired from another project at a considerable savings.

In order to displace additional oil from the reservoir, a micellar slug will be injected initially, followed by a graded polymer slug as a mobility buffer, and finally water.

The initial micellar slug is a microemulsion of sulfonated hydrocarbon. Due to transportation costs, it is economically necessary that Wilmington Field crude oil or a locally produced hydrocarbon material be used as the basic component with sulfonation done locally if the pilot were ever expanded to the operational level. Tests using Wilmington crude oil are expected to be satisfactory. The search for a local firm with sulfonation capability is in progress. A solution appears near on an earlier problem encountered in finding a suitable polymer for use as the mobility buffer.

The computer model study of the initially proposed 12 acre pilot test area indicated that the pressure differential required to keep the micellar slug on pattern would lead to poor sweep efficiency. After analysis of several flood patterns, an optimum test area and pattern, covering about 7 acres, was selected.

The project is currently about 5 months behind schedule. The first decision point was reached in June 1977. To continue with the project required the redrilling of a well in order

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to evaluate the present condition of the reservoir and obtain material for injectivity tests. It was decided to continue with the project since solutions to the problems encountered appear within reach. The redrilling of the well has been successfully completed. Cores taken from this well will be used for laboratory tests of flooding potential.

The Division will continue to analyze the progress of this pilot scale demonstration for enhanced oil recovery and present semi-annual progress summaries to the Commission for its information.