

MINUTE ITEM

28. PROPOSED OCEAN-FLOOR OIL-WELL COMPLETION, SANTA BARBARA COUNTY; SHELL OIL COMPANY - P.R.C. 2920.1.

The attached Calendar Item 23 was presented to the Commission for information only, no Commission action being required.

Attachment

Calendar Item 23 (1 page)

CALENDAR ITEM

INFORMATIVE

23.

PROPOSED OCEAN-FLOOR OIL-WELL COMPLETION, SANTA BARBARA COUNTY; SHELL OIL COMPANY - P.R.C. 2920.1.

The Shell Oil Company, operator under Oil and Gas Lease P.R.C. 2920.1, has submitted a drilling program for a well to be drilled into the leased land approximately 14,000 feet from shore in a water depth of 250 feet, using mobile marine equipment. If productive, it is proposed to complete the well by the installation of an oil-well production-and-control head on the ocean floor. The production assembly will be approximately 33 feet in height.

The ocean-floor drilling-and-completion equipment was designed and fabricated under the direction of the operator. Most of the drilling-and-completion operations will be carried out without the assistance of a diver. An underwater television has been installed to monitor assist the operation.

The production and control assembly is securely attached to the outer well casing which is cemented into the underlying strata. The principal structure rising 20 feet above the ocean floor, has a one-inch wall thickness and will resist moments in excess of 1,000,000 foot-pounds. Production strings of casing and tubing are landed and secured in a unit inside the outer housing. There are secondary seals to back up all primary seals in the well head at final completion.

The valves controlling both the tubing and annulus connections are normally spring closed and pressure opened for fail-safe operation. Remote control pressure for this operation is supplied through a separate hydraulic line. In the event that the control-line pressure drops below a preset pressure or the production-line pressure drops, the valves automatically close, shutting in the well. Strain gauges will be located at critical points on the outer mandrel to record the strains to which the mandrel may be subjected to afford environmental proofing. The annulus between a casing and tubing will be packed off through the use of a tubing packer. A storm choke is installed in the tubing in order to shut in the well flow in the event of an accident occurring to the pressure head.

A review and report by an independent Professional Mechanical Engineer advises that the design criteria employed for fabrication and test of this equipment are well within limits required for safe underwater drilling and completion.

After installation of the production head, the well may be serviced through the use of mobile marine equipment. A Department of the Army permit, authorizing the placement of the production head on the ocean floor, has been applied for from the U. S. Corps of Engineers. After an inspection of the production and control head proposed for use and a review of the design diagram by the staff, it appears that all reasonable precautions to guard against equipment failure that can be foreseen have been taken.