BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 24, 1963

EXAMINER HEARING

IN THE MATTER OF:

Application of Socony Mobil Oil Company, Inc. for a multiple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the triple completion (conventional) of its State Bridges Well No. 96, located in Unit H of Section 26, Township 17 South, Range 34 East, Lea County, New Mexico, to produce oil from the Vacuum-Pennsylvanian, Vacuum-Wolfcamp, and North Vacuum-Abo Pools through parallel strings of tubing.

CASE 2801

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 2801.

MR. DURRETT: Application of Socony Mobil Oil Company, Inc. for a multiple completion, Lea County, New Mexico.

MR. SPERLING: Jim Sperling, with Modrall, Seymour, Sperling, Roehl and Harris, Albuquerque, appearing for the applicant. We have one witness.

(Witness sworn.)

(Whereupon, Applicant's Exhibits Nos. 1, 2, and 3 marked for identification.)

MR. UTZ: Any other appearances in this case?

JACK D. HILL

called as a witness, having been first duly sworn on oath, testified as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

Q State your name, place of residence, by whom you are employed and in what capacity.

A Jack D. Hill, reside in Hobbs, New Mexico, employed as a Production Engineer for Mobil Oil Company.

Q Have you testified before the Commission or an Examiner on a previous occasion, Mr. Hill?

A Yes, sir, I have.

Q At that time your qualifications were accepted?

A Yes, sir.

MR. SPERLING: Are they acceptable here?

MR. UTZ: Yes, sir, they are.

Q (By Mr. Sperling) Mr. Hill, the application in this case, with which I'm sure you are familiar, requests authority for the multiple completion of Mobil State Bridges No. 96 Well, with the location of the well as stated in the application, in Lea County, New Mexico. Would you please now refer to what has been marked as Exhibit No. 1 and tell us what that illustrates, and state briefly the information contained on it?

A Exhibit No. 1 is a location plat showing a portion of Mobil's acreage in the State Bridges area and adjoining acreages

belonging to other operators.

State Bridges No. 96 is shown outlined in red; location is in Unit H, Section 26, Township 17 South, Range 34 East. It is a twin well to an old well drilled deeper, State Bridges No. 27, on the same location.

Q You were present at the time of the hearing this morning which concerned Marathon Oil Company's State McCallister Well No. 5, which is also shown on this plat, Exhibit No. 1. It is noted that you have an offset well to the west which appears to be designated as State Bridges No. 95; that's correct, is it not?

A Yes, sir, that is correct.

Q And that well is a multiple completion well, the 95?

A Yes, sir. And this well was brought before an Examiner Hearing in Case No. 2688 and was approved by the Commission Order No. R-2372 as a multiple completion a few months ago. It is presently producing from zones equal to the zones that we will be discussing in State Bridges 96 today.

Q Would you please give us a brief history of the procedures and techniques that have been followed in connection with the drilling and the present stage of completion of your Bridges No. 96 Well, which is the subject of this hearing?

A Yes, sir. The subject well was spudded on the 3rd of December, 1962. A 17-1/2 inch hole was drilled to 365 feet, and a 13-3/8 inch surface casing was set and cemented at this depth,

using 350 sacks of Encore cement plus two percent HA-5 as a cement accelerator. The cement circulated and the casing was tested in accordance with New Mexico Oil Conservation Commission regulations before being drilled out.

A 12-1/4 hole was drilled to below the Pennsylvanian zone at 11,444 feet, with several cores being cut through the Abo section and the Wolfcamp section while this hole was being drilled. The Abo section was cored from 9130 to 9335, and the Wolfcamp section was also cored from 9564 to 9785. The Pennsylvanian zone was drillstem tested and flowed free oil and gas to the surface on the second drillstem test in this section.

After drilling through the Pennsylvanian zone, a string of 7-5/8ths casing was set in order that the mud weight required to hold the Pennsylvanian pressure would not be put on the Devonian zone when we drilled into it. We ran a tapered string at 17 feet of 8-5/8ths casing, and 11,544 feet of 7-5/8ths casing, and set this string at 11,515 feet. The string was centralized around the shoe joint and through all possible pay zones. It was cemented with 1,050 sacks of Trinity lightweight cement with various additives, friction reducers, and accelerators; and 100 sacks of Trinity Inferno Neat.

The cement did not circulate and we found cement top at 6630 feet by temperature survey. The casing was perforated at 6620 feet with two cement holes, and the cement was circulated to the surface using 860 sacks of Trinity lightweight cement.

This casing was also tested in accordance with regulations before drilling it out, and the squeeze holes were tested with 3,000 pounds pressure after being drilled out.

The hole was drilled to a total depth of 12,390 feet. The Devonian section was tested on open drillstem test and was found to contain salt water, so the well was plugged back.

This information is all given on Exhibit No. 3. The open hole section was plugged back using two cement plugs, Trinity Inferno cement plugs, the first being from 12,112 to 12,390, inclusive; and the second from 11,450 to 11,550, with 9-1/2 pound drilling fluid left between these plugs. These plugs were pressure tested to insure that they would hold, and the Pennsylvanian section was perforated from the section 11,372 to 11,400 with 15 holes. These perforated sections are indicated on Exhibit No. 2, the gamma ray acoustic log.

The well was tested and flowed 271 barrels of new oil plus zero barrels of formation water in 24 hours on a 10/64 choke with a tubing pressure of 4,057 psi at the beginning of the test and 3156 psi at the end of the test. Oil gravity, 47.2 degrees API at 60 degrees Fahrenheit; GOR,3876 to 1.

After this test the well had a packer set above the Pennsylvanian zone with a plug in it, and the Wolfcamp section from 9608 to 9868 was perforated in two sections, 22 holes total, and was treated with 13,000 gallons of acidized kerosene emulsion treatment. The potential test flowed 346 barrels of

new oil plus 15 barrels of load water in 24 hours on a 24/64 choke, tubing pressure 400 psi, GOR 736, oil gravity 40.2 degrees API at 60 degrees Fahrenheit. After this zone was successfully tested, the Abo section was perforated from 9205 to 9258, inclusive, with 21 holes, and was treated and tested in a like manner as the Wolfcamp zone. A production test on this zone flowed 110 barrels of new oil plus seven barrels of acid water, and in 13 hours on a 21/64 choke, tubing pressure 300 to 380 pounds, GOR 54 to 1, oil gravity, 37.2 API.

Upon the successful testing of these three zones, completion equipment was run in the hole, consisting of a Baker Model "D" Packer set on a wireline at 11,350. A Brown hydraulic set HS17-2C dual packer was run on the long string of tubing. The intermediate string of tubing or the Wolfcamp string was run and latched into the top of this packer, and the Abo string or the short string was run and latched into a triple parallel anchor which was run in the hole on the long string. This anchor provides a hold-down device so we may pump the Abo.

The wellhead was installed on this well, and the packer, the hydraulic set packer was set at this time. All three wells were swabbed and kicked off. The Pennsylvanian section at the present time is flowing; it has been shut-in for a bottom hole pressure. The indicated bottom hole pressure is 6319 psi at perforations.

The Wolfcamp is presently shut-in awaiting allowable.

It also had a bottom hole pressure run, indicated pressure being 3131 psi at perforation depth; and the Abo is shut-in awaiting allowable and a pumping unit. It has not been potentialed. The last test, the GOR indicated was 54 to 1, indicating a very low producing capability. Plans are in progress at this time to install a beam type pumping unit to produce this particular zone. Its shut-in bottom hole is 29 to 5 psi. We have also run a packer leakage test, and the test indicates that we do not have communication between any of the three zones.

Q Which of these zones carry field designation or definition?

A All three of them. The Abo is carried as the North Vacuum-Abo. The Wolfcamp is Vacuum-Wolfcamp, and the Pennsylvanian zone is Vacuum-Pennsylvanian.

Q You stated that packer leakage tests have been made and that reports of the leakage tests have been made?

A Yes, sir, they are on file with the District Commission Office at the present time.

Q Have you made a comparison of the proposed completion with single well completions, the cost, the economics of those?

A Yes. The cost of subject well was $277,000.00; estimated cost for a single Abo, Wolfcamp, and Pennsylvanian well amounts to $400,000.00, indicating a net savings of $123,000.00 by making a multiple completion in these three zones.

Q In your opinion, Mr. Hill, would the granting of this

application be in the best interest of conservation, prevention of waste, and protection of correlative rights?

A Yes, sir.

Q Do you have anything else you would like to add?

A Not at this time, no, sir.

MR. SPERLING: We have had marked Exhibits 1, 2, and 3, Mr. Examiner, in this case, consisting of the plat, the well log, and the diagrammatic sketch of the proposed completion method. We offer those exhibits at this time.

MR. UTZ: Without objection, Exhibits 1, 2, and 3 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits Nos. 1, 2, and 3 admitted in evidence.)

Q (By Mr. Sperling) Is there anything else you would like to add?

A Yes, sir, I did fail to indicate that we have an intermediate string of casing, 9-5/8 casing set at 4400 feet. It was cemented with 2300 sacks of Encore cement which circulated to the surface.

Q In your opinion, would the casing and the cementing program which you have outlined here furnish adequate protection against communication as between producing zones and fresh water zones throughout the length and depth of this hole?

A Yes, sir, I believe the three strings of casing in the hole have had cement circulated to the surface. A bond log was

run in the section of the hole covering the Abo and Wolfcamp. It indicated that good cement bonding was obtained between these two zones effecting a very good shutoff.

Q Do the pressure differentials which exist as between these formations give -- that is, by other indications give adequate indication of any packer failure or any casing failure?

A Yes, sir, they do. The pressure differential between the Wolfcamp and Pennsylvanian zone, the two lowermost, is 2,388 pounds. It's somewhat smaller between the Wolfcamp and Abo, because of the approximately same depth of the two zones, but we have a differential of 226 pounds. We also have oil gravities that can be checked against each other to indicate that no communication exists in the well.

Q And you have or will install surface equipment which will adequately measure, for the purpose of reporting allowables, the production from the respective zones?

A Yes, sir, this equipment is installed at the present time.

MR. SPERLING: That's all I have at this time.

CROSS EXAMINATION

BY MR. UTZ:

Q Would you give me the pressure and GOR on your Pennsylvanian zone again?

A Yes, sir. During the potential test, the GOR was 3,876 to 1. The wellhead pressure varied from 4,057 pounds at the

beginning of the test to 3,156 pounds at the end of the 24-hour test.

Q What was the GOR for the Wolfcamp zone?

A Wolfcamp GOR is 736 to 1.

Q Is this the same three zones that were completed in the 95?

A Yes, sir. The Abo and Wolfcamp are correlative, the Pennsylvanian is producing from a different sand stringer in the Pennsylvanian-Morrow section.

MR. UTZ: Are there any other questions of the witness?

MR. DURRETT: Yes, sir, I have a question or two.

BY MR. DURRETT:

Q Mr. Hill, I am familiar with this Baker Model "D" type packer. That is a permanent type packer, is that correct?

A That's correct.

Q I'm not familiar with the Brown HS, is that a permanent type packer?

A No, that is a retrievable packer. It is similar to the second packer that was discussed in the Marathon State McCallister No. 5. It is hydraulic set and retrievable when necessary to pull equipment out of the well.

Q But you can detect packer leakage with this?

A Yes, sir.

Q Readily?

A This has been done. We have completed a successful

packer leakage test in this well.

Q One other question. Your Exhibit No. 3 has not been copyrighted, has it?

A Mr. Sperling asked me about the copyright on this, and I plead ignorance as to this question.

MR. SPERLING: A little out of his field.

Q (By Mr. Durrett) A little out of your field. You submit this to the Commission?

A This is correct. This is submitted by Mobil in all of their drawings in this case, I think it has no meaning.

MR. DURRETT: Thank you.

MR. UTZ: Any other questions? The witness may be excused.

(Witness excused.)

MR. UTZ: Any statements in this case? The case will be taken under advisement, and the hearing adjourned.

* * *

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 11th day of May, 1963.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2801, heard by me on May 24, 1963.

[illegible], Examiner
New Mexico Oil Conservation Commission