BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE 1741

TRANSCRIPT OF HEARING

AUGUST 19, 1959

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BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE 1741 Application of El Paso Natural Gas Company for a gas-gas dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Hancock Well No. 4 in the SW/4 SW/4 of Section 23, Township 28 North, Range 9 West, San Juan County, New Mexico, in such a manner as to produce gas from the Aztec-Pictured Cliffs Pool and to produce gas from the Blanco-Mesaverde Pool through the casing-tubing annulus and tubing respectively. Applicant proposes to utilize a retrievable-style packer in said well.

BEFORE:

Daniel S. Nutter, Examiner.

T R A N S C R I P T O F P R O C E E D I N G S

MR. NUTTER: The hearing will come to order, please. We will take next Case 1741.

MR. PAYNE: Case 1741 Application of El Paso Natural Gas Company for a gas-gas dual completion.

MR. SETH: Mr. Garrett Whitworth, Mr. Oliver Seth for El Paso.

MR. WHITWORTH: We have one witness, Mr. John Mason, to be sworn.

(Witness sworn)

JOHN MASON,

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

DIRECT EXAMINATION

BY MR. WHITWORTH:

Q Please state your name, by whom and in what capacity you are employed.

A John Mason, employed by the El Paso Natural Gas Company as a proration engineer.

Q Mr. Mason,have you previously testified before this Commission as an expert proration engineer?

A Yes, sir, I have.

MR. WHITWORTH: We ask that the witness' qualifications be accepted.

MR. NUTTER: Yes, sir.

Q You are familiar with El Paso Natural Gas Company's Hancock No. 4 Well and the application in this case, are you not?

A Yes, sir, I am.

Q What does El Paso seek by this application?

A El Paso seeks permission to use a retrievable-type packer in its Hancock No. 4 Well, which is actually completed in the Aztec-Pictured Cliffs and the Blanco-Mesaverde Gas Pools.

(Thereupon, El Paso's Exhibit No. 1 was marked for identification.)

Q I hand you a document which has been marked as El Paso's

Exhibit No. 1, and ask you to state what it is?

A Exhibit 1 is a plat showing the location of the Hancock No. 4. It shows the location to be 990 feet from the West line, 1090 feet from the South line in Section 23 of Township 28 North, Range 9 West.

Q Will you identify offset operators on that plat?

A El Paso Natural Gas is the offset operator in all instances surrounding this well.

(Thereupon, El Paso's Exhibit No. 2 was marked for identification.)

Q I hand you another document which has been marked as El Paso's Exhibit No. 2 and ask you to state what that is?

A Exhibit 2 is a schematic diagram of the equipment in the Hancock No. 4 Well. This diagram shows that the well is completed in this manner. It is 10 3/4 inch surface casing set at 174 feet, 7 5/8 inch production strings set at 3387. The 5 1/2 inch liner set from 3317 to 5716; shows the Pictured Cliffs formation to be perforated at various intervals between 3244 and 3302. Production from the Pictured Cliffs is through the casing-tubing annulus. Thereis 1 1/4 inch tubing landed at 3242 as a siphon string. Production from the Mesaverde is from perforations at various intervals between 5500 and 5636. Production is through 2 inch tubing which is landed at 5596. There is a Baker Model "EGJ" retrievable-type production packer set at 3401.

Q Now, what two zones are producing?

A The Pictured Cliffs and the Mesaverde.

Q Will you explain how this well is completed?

A The well is completed with the equipment as described in the schematic diagram, which is shown to be Exhibit No. 2.

Q Now, you've mentioned the Baker Model "EGJ" packer. What would you say are the advantages of this retrievable-type packer over a permanent type packer?

A Well, I might say in distinguishing between a permanent type packer and retrievable-type packer that the permanent type packer has two sets of slips within the packer body. These slips are so designed as to hold the packer in place against forces acting either from above or below. As the name implies, the permanent type packer becomes virtually a part of the casing itself and can be removed only by drilling out, and this idea of nonretrievability of the permanent type packer is a disadvantage in itself. Also the initial cost of a permanent type packer is greater than that on a retrievable packer.

Q Is this Baker "EGJ" type retrievable packer effective to prevent communication of gas between the two zones?

A It has been the experience of El Paso in the application of this packer and the wells it has been used in that it has performed very satisfactorily in segregating the two zones.

Q This type of packer has been used by El Paso in a number of instances before?

A Yes, sir, it has. I don't know the exact number, but

it has been used to quite some extent.

Q As to cost, to your knowledge, what is the advantage of this retrievable-type packer?

A I might say first, that the Baker Model "D" permanent type packer costs approximately nine hundred dollars to run it on a wire line. To run this same packer on tubing, the cost is approximately six hundred forty dollars. The Baker Model "EGJ" costs five hundred and seventy-eight dollars complete.

Q Now, does this retrievable-type packer work -- actually, would you explain that?

A This packer as used by El Paso embodies some of the same features of the permanent type packer in that it has a set of lower slips which prevent movement of the packer in the event of dominant forces from above the packer. Also it has a hydraulic button, hydraulic holddown assembly which is run in conjunction with the packer which prevents the upward movement of the packer in the event of downward dominant forces from the bottom. Differential pressure in favor of the tubing or in favor of the lower zone will accuate these buttons and prevent movement of the packer, prevent an upward movement of the packer.

Q This is set to be a retrievable-type packer. How is it retrieved?

A It is run in the casing string. In removing the packer there is a circulating valve run above the hydraulic holddown, and there is a sheering within the circulating valve in order to re-

move it, the packer weight is picked up on the tubing and thus sheering the sheering ring and circulating valves. That permits equalizations of pressures between the tubing and the casing which will in turn release the holddown buttons. Then by rotating the tubing at the surface, the slips may be withdrawn from the casing and in turn the packer retrieved in that manner.

Q Do you have any pressure temperature data with respect to this particular well?

A Yes, sir, I do. I have calculated bottom hole pressures for the Pictured Cliffs and for the Mesaverde formations, and also have temperatures of those zones. The calculated bottom hole pressure for the Pictured Cliffs is 840 PSI with a temperature of 101 degrees Fahrenheit. For the Mesaverde it is 1112 PSI with a 136 degrees Fahrenheit temperature. The temperature at the packer is 133 degrees. With these bottom hole pressures for the Pictured Cliffs and Mesaverde, we have a differential between those two pressures of 272 pounds. I might add that in order for the hydraulic holddown bottoms to effectively hold against the casing and prevent upward movement, a differential of 85 to 100 pounds is required.

Q Do you have potential pressure data?

A Yes, sir, I do. On, the Pictured Cliffs formation tested on a three hour with 3/4 inch tested 3,197 MCF per day, with a calculated absolute open flow of 3,596 MCF per day. It had a shut-in pressure at the wellhead of 773 PSI. The Mesaverde tested

on three hours with three-quarter inch choke tested 3,677 MCF per day. Calculated open flow was 5,694 MCF per day, that had a shut-in pressure at the wellhead of 845 PSIA.

Q Do you have a log on this well?

A Yes, sir, I do.

MR. WHITWORTH: Will you mark that as El Paso's Exhibit No. 3?

(Thereupon, El Paso's Exhibit No. 3 was marked for identification.)

Q Will you explain to the Examiner what this log shows?

A This is a standard electrical log of the Hancock No. 4 Well, which shows the tops and the bottoms of the pay zones and perforated intervals within the pay zones.

Q In your opinion, would the granting of this application prevent waste?

A Yes, sir, it would.

Q Would it violate or prejudice correlative rights?

A No, sir.

Q Were El Paso's Exhibits 1, 2 and 3 prepared by you or under your supervision?

A Exhibits 1 and 2 were prepared by our Farmington Engineering Office at my request. Exhibit 3 is an electrical log that was run by Schlumberger

MR. WHITWORTH: We ask that El Paso's Exhibits 1, 2 and 3 be admitted in evidence.

MR. NUTTER: El Paso's Exhibits 1, 2 and 3 will be

entered.

(Thereupon, El Paso's Exhibits Nos. 1,2 and 3 were received in evidence.)

Q In the event that this application is granted, would El Paso be willing to conduct whatever tests the Commission determines appropriate and necessary?

A Yes, sir, we would, and I might add that this well is equipped to -- so that we can conduct any tests desired.

Q Is there anything else that you would like to add to your testimony, Mr. Mason?

A No, sir.

MR. WHITWORTH: That's all we have.

MR. NUTTER: Any questions of Mr. Mason?

MR. PAYNE: Yes, sir.

MR. NUTTER: Mr. Payne.

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Mason, how do you decide what type packer you are going to use in a dual and who decides?

A The decision is usually made by our drilling superintendent, I believe, in our Farmington office.

Q Do you know what he takes into consideration in determining what type packer he feels is best for the particular well?

A Well, yes. I'm sure that he takes into consideration the pressures that they expect to encounter, the pressures and

the temperatures and then on that basis determines whether or not the packer -- what packer he can use at the cheapest cost to effectively provide for separation between the two zones. Now, of course, his decision, too, is based on what the packer people recommend under certain circumstances.

Q Well, now, in view of your last statement there, does Baker recommend this "EGJ" packer to be used in dual completions?

A Yes, sir, they do.

Q And their literature indicates that it effectively separates the two producing horizons?

A I'm not sure there is any special reference or particular reference in their literature as to separation. I believe their literature states that packer with a holddown buttons is to be used -- is recommended for use where below packer pressure is higher than below packer pressure is to be encountered.

Q Is it pressure differential that activates the holddown buttons?

A That is correct.

Q What happens if the pressure equalizes?

A Well, in that event the force is acting upward and downward,then the packer itself will become equal and then the weight of the tubing itself will hold the packing element in compression and hold the packer down.

Q So that even if there is no pressure differential between the two zones, the packer will still effectively separate

the two zones?

A That is correct. I might add here that the tubing weight required to expand the packing element on the "EGJ" is approximately 6,000 pounds. We usually set down on, that weight, on the packer with approximately 12,000 to 14,000 pounds, which should keep the packing element in compression and afford the seal that is required.

Q Do you have any problem with the tubing moving in the casing?

A No, sir, there has been, to my knowledge, no problems.

Q Now, does Baker in their literature -- do they set a specific temperature --

A I'm not sure the literature specified a temperature, but their representative in Farmington has told me that they do not recommend the use of this packer at temperatures over 200 degrees Fahrenheit.

Q Over 200?

A And El Paso in the past has been limited to temperatures not in excess of 120 degrees.

Q And this one is 103 degrees Fahrenheit at the packer?

A Yes, sir, that is correct.

MR. PAYNE: That's all. Thank you.

MR. NUTTER: Any further questions of Mr. Mason?

QUESTIONS BY MR. NUTTER:

Q Now, Mr. Mason, you said when you go to withdraw this

retrievable packer from the well, that you sheer off this pin and then you rotate your tubing to remove the tubing, right?

A I say that you will sheer the pin in the circulating valve which will permit circulation between the casing tubing.

Q And that releases the hydraulic holddown buttons?

A That is correct.

Q And these lower slips, how are they --

A They are released by locating the tubing at the surface.

Q What direction do you rotate the tubing?

A I believe it is to the right.

Q And you've experienced no tubing movements with the flow of gas from the Pictured Cliffs or Mesaverde?

A To my knowledge, they have not.

Q Now, you stated that a Model "D" cost nine hundred dollars on a wire line or six hundred forty dollars run on tubing, is that correct?

A Yes, sir.

Q And "EGJ"?

A "EGJ" five seventy-eight.

Q Five seventy-eight complete?

A Yes, sir.

Q What is the difference between those two costs?

A Well, to run on the tubing and on the wire line, I mean on the tubing, the difference would be about fifty-two dol-

lars. That is the initial cost there.

Q And how much does one of these dual completions cost total?

A I think the dual completion in the Mesaverde runs somewhere in the neighborhood of a hundred thousand dollars. I am not positive about that. That does appear to be an insignificant amount. However, the company has experienced the necessity of working over these two zones in the basin quite a bit, and the difference in the price to workover a well is substantial or the company feels that there is a considerable difference in having to move a rig and drill out a permanent type packer or to move a pulling unit merely to pull the tubing with the packer.

Q What kind of workovers are generally required? Aren't some of these workovers,a large percentage of them, of a nature that could be performed right through the packer?

A I'm sure they are, some of them. It is likely they could be performed through the packer.

Q So in many instances you probably wouldn't have to drill off that packer to work the lower zone?

A That is possible,that's true.

QUESTIONS BY MR. PAYNE:

Q Mr. Mason, does Guiberson make a permanent type packer?

A I believe they do, yes, sir.

Q Do you know the cost of that?

A No, sir, I don't.

Q As a matter of company policy -- let me ask you this first. Most of the difficulties you encounter with a packer, you encounter initially, don't you?

A Not necessarily. It might be at a later date when you attempt to pull a packer or attempt a workover operation, there may be the necessity of pulling packers at that time, and then you may encounter some difficulty.

Q Now, when you retrieve some of these packers, as a matter of company policy, do you put in what I'll call new stuffing?

A Yes, sir, they do. As a matter of policy, they redress these packers.

MR. PAYNE: Thank you.

QUESTIONS BY MR. NUTTER:

Q What would you do in the event one of these retrievable packers wouldn't retrieve?

A Well, it can be milled out. I mean it is not made of drillable packer, but it can be milled out, and it is my understanding that the company is willing to do that should the necessity arise.

Q I see.

MR. NUTTER: Any further questions of Mr. Mason? He may be excused.

(Witness excused)

MR. NUTTER: Do you have anything further, Mr. Whitworth?

MR. WHITWORTH: Not in this case.

MR. WHITWORTH: Not in this case.

MR. NUTTER: Does anyone have anything to offer in Case 1741? We will take the case under advisement and take Case 1742.

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STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, J. A. Trujillo, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in Stenotype and reduced to typewritten transcript by me, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this, the 5th day of September 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Joseph A. Trujillo
NOTARY PUBLIC

My Commission Expires:

October 5, 1960

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1741 heard by me on 8-19, 1959.

..... Examiner
New Mexico Oil Conservation Commission