

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 1453

TRANSCRIPT OF HEARING

DEARNLEY - MEIER & ASSOCIATES
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May 28, 1958

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
MAY 28, 1958

IN THE MATTER OF: :

CASE NO. 1453 Application of Magnolia Petroleum Co-: :

pany for an oil-oil dual completion.: :

Applicant, in the above-styled cause,: :

seeks an order authorizing the dual : :

completion of its Stephens Estate No.: :

1 Well, located in the NW/4 SW/4 of : :

Section 24, Township 21 South, Range : :

37 East, Lea County, New Mexico, in : :

such a manner as to permit the pro- : :

duction of oil from the Terry-Bline- : :

bry Pool and Wantz-Abo Pool. : :

BEFORE:

Elvis A. Utz, 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. UTZ: The next case on the docket will be Case 1453.

MR. PAYNE: Application of Magnolia Petroleum Company for
an oil-oil dual completion.

MR. SPERLING: J. E. Sperling, Modrall, Seymour, Sperling,
Roehl and Harris of Albuquerque, representing the applicant. We
have one witness, Mr. John Sanders.

(Witness sworn)

JOHN L. SANDERS,

called as a witness, having been first duly sworn on oath, testi-
fied as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

Q Will you state your name, please?

A John L. Sanders.

Q By whom are you employed and in what capacity?

A Magnolia Petroleum Company as petroleum engineer.

Q Have you testified before this Commission on previous occasions in an expert capacity?

A Examiner hearings, yes.

Q You were found to be a qualified witness on those occasions?

A On those occasions, yes.

MR. STERLING: Are the witness' qualifications acceptable?

MR. UTZ: They are.

Q Mr. Sanders, would you refer first, please, to what has been marked as Exhibit No. 1, and describe for us the location of the particular well to which this application is referable?

A The Magnolia Stephens Estate No. 1 is located in the northwest of the southwest of Section 24, Range 37 East, Township 21 South.

Q The well is located in the northwest of the southwest of 24 as indicated on the Exhibit, is that correct?

A That's right.

Q Will you describe the present zone from which the well is producing?

A The well is presently producing from the Abo formation, the

Wantz-Abo Field, with perforations from 7000 to 7108.

Q What do you propose to do? In other words, what authority are you seeking in this application?

A We are seeking authority to dually complete the Terry-Blinebry zone from 5684 to 5897.

Q Does Exhibit 2 indicate the zone of present completion and the proposed zone of completion with the cement program and the casing program?

A It does. Exhibit 2 shows that we have ten and three-quarter inch casing set at 329, with 300 sacks; it shows we have seven and five-eighths casing set at 3145, with 2510 sacks; shows that we have a five and a half inch liner set at 7481, 660 sacks, plugged back at 7149. The present completion is indicated, and the proposed new zone is indicated.

Q Can you describe for us the present producing gas-oil ratio and other pertinent factors insofar as present production is concerned?

A Present production from the Abo formation is 21 barrels of oil, no water, with gas-oil ratio of 2667 to 1.

Q Now, what specifically do you propose with reference to completion in the Blinebry formation?

A We propose to use a Mandnel type dual completion head, a Model D Packer, at approximately 7000 feet, an oil master pump, and a dual zone cross over assembly to produce this formation. We plan on setting a retrievable bridge plug between the formation, perforate

the proposed interval, and treat as necessary to complete as an oil well.

Q Now is the map which you have just described, indicated on this seismic diagram which is identified here as Exhibit 4 and which I believe you have displayed on the board over there?

A Yes, it is. Exhibit 4 shows the down hole pump arrangement for the dual zone pumping, with one string of two inch EUE and one string of one inch EUE tubing to segregate the production from the two zones. Now, the proposed program production from the upper zone will enter a pump through the upper zone standing valve, as indicated, into the upper zone pump, and be produced up the two inch tubing. The lower zone production will enter at the bottom below the packer, come into the lower zone pump, be transmitted up the two inch tubing to a cross over assembly where it will be crossed over to the one inch, and that's up to the surface.

Q What information do you have concerning prospective production from the Blinebry with reference to pressures and gas-oil ratios?

A Referring to Exhibit 1, Guld's Stephens No. 2 is the offset well to the north. It's presently completed in the Terry-Blinebry Field. It is producing 29 barrels a day with a ten thousand four hundred and twelve ratio; gravity is 40.7. Casing pressure in this well is 6,600 pounds. It presently has a pump unit installed.

MR. UTZ: Was that a surface pressure or bottom pressure?

A Surface pressure.

Q What is the interval -- the anticipated interval between the present Abo production and the Blinebry -- the anticipated Blinebry production at the location referred to in this application?

A There is a 1138 foot difference between the two zones.

Q Now, has the information that you have just testified about, that is, as to the two formations, is that substantiated by well logs?

A Yes. Exhibit 3 has the indicated proposed zones marked showing the displacement of the two. I have indicated in red on the electric log the proposed perforations for the new interval.

Q How do you propose to insure against communication as between these zones?

A Referring to Exhibit 4, we have the Model D packer which will separate the two zones and serve as a seal around the tubing. The upper zone pump has a seal -- cross-over seal to insure that production in the upper zone is sealed here. We have a polished -- a pack-off assembly on a polished rod to insure seal here; the one inch tubing fits into a setting arrangement which seals off there.

Q What tests will you be able to conduct with this proposed arrangement to detect any communication as between zones?

A We'll be able to tell from the difference in gravity of the two zones and difference of gas-oil ratio and pressures on the surface. We will also be able to shut in the production from the two inch tubing, and if we don't built up pressures, we know that we will have leakage in one of our seals.

Q Would you explain to the Examiner what differentials you have present with reference to the two zones?

A The estimated Terry-Blinebry bottom hole pressure is 2000 pounds. The estimated Abo pressure is less than 500 pounds. The present casing pressure on the Abo Well is 15 pounds. Therefore, any increase in pressure on the producing side for the Abo would indicate communication.

Q What differentials do you have in gas-oil ratios?

A We have 2667 for the Abo and 10,412 for the offset well. We anticipate that the ratio will be high, whether it will be 10,000 or less. It should be at least 5,000 or more.

Q And what gravity differentials do you have?

A The Abo gravity is 43 -- 42.3, and the Blinebry is 40.7.

Q So you anticipate you have three or four different and distinct checks against communication, is that correct?

A That's right.

Q Will you explain again how that pressure builds up, in other words, assuming that you shut in the Blinebry oil side, producing side, at the surface?

A If this Blinebry oil side is shut in, the pump will exert pressure to the surface. If that pressure does not show at the surface, we have a leak here or here, or our standing valve is leaking. If we have a leak at the cross-over seal or pack-off assembly, we will immediately get an increase in pressure on our inch tubing in the surface, and an increase in production.

Q Well now, by leak, what do you mean, to what extent would such a leak indicate communication as between zones, if it would at all?

A Any passage of fluid under this test would show up.

Q And what proportions might you anticipate that that passage of fluid would assume?

A Well, under the initial installation, there would be no passage, and at any time when we receive indications that we were getting passage, we would have to repair the tubing.

Q Now, what assurance do you have, while those repairs are being made, that there is no further communication?

A Well, when you are pulling the tubing on both zone pumps, you unlatch here. You leave a lower standing valve to make sure that there is no communication from the upper and the lower zones. The gas bypass also has a standing valve which insures no passage.

Q Would you explain in a little more detail the function of the gas bypass and what it is designed to do?

A The gas bypass is designed to allow any separated gas to enter above the pump on the down stroke so that you can prevent gas lock in the pump. The standing valve in the one inch assumes the load of the hydrostatic head of the lower pump on the down stroke, that leaves it free here for this valve to open, if the gas pressure has reached sufficient amount to overcome what pressure would be in here on the down stroke. That would allow us to bypass any gas up into our pump, and on the up stroke then, that would be compressed

and shoveled into our one inch, thus preventing gas lock of our pump.

Q Would you explain the function of your production packer and also the packing around your polished rod assembly there, between the upper and the lower zone pumps?

A The packer is utilized to form a seal in the casing around the tubing or the latch-on assembly as it is lowered into the packer to seal between the two zones. The cross-over assembly allows a packer between the -- inside the tubing between the two zones using the cross-over seal here and the pack-off seal here. Exhibit 4-A shows in detail the cross-over seal and the pack-off assembly. The upper seals on the cross-over seal are your seals for your upper pump. They, in effect, serve the same function as the seal over your lower pump does here. That is your normal sitting cups. The lower seal seals your two inch tubing, seals off your upper zone and your lower zone within your two inch tubing there. Your pack-off assembly consists, in this case, of a machine-precision polished rod with a liner to a one-thousandths clearance 36 inches long to assure a seal below your cross-over seal inside your rods to allow you to transmit your participating motion to your lower pump. Three types of seal are available for this pack-off assembly. We have metal to metal, testlon and Hi-Car. The latter two are both packing material. The metal to metal gives you a positive seal over 36 inches. The other two are 18 inch seals. Testlon is a hydrocarbon derivitive similar to plastic. It is inert to hydrocarbons. hi-Car

is a rubber carbon product used in packers.

Q Now, you spoke of one-thousandths clearance insofar as this assembly is concerned. How does that compare with your clearance in your ordinary pump assembly?

A An ordinary pump assembly may have clearances as low as three-thousandths and as high as eight-thousandths. This seal is a lot closer than they normally use in a pump.

Q Now, in the metal to metal seal, what actually constitutes the seal as between the metal and the metal?

A Friction. The resistance to fluid flow due to friction.

Q You anticipate that would constitute an adequate seal insofar as this assembly is concerned?

A Yes, I do. We have proof that our thermo cards that we ran on any number of wells, that metal to metal pumps do seal. We've taken, stopped our thrimometer and taken what we call a thrimometer check, which also checks your fluid passage on your plunger and we have detected no leakage. We weren't anticipating at that time -- at the time of these tests, any further use of the cards other than to check the pumping ability of the individual well, but I know that after five minutes, in cases, we still don't have any leakage through our metal to metal plungers.

Q And with the clearance of what extent, or to what extent in those instances?

A From three-thousandths to as much as six-thousandths.

Q In the event it is necessary to make pump repairs, how do

you anticipate that that will be done, or can it be accomplished to both the upper and bottom zones?

A Any time pump repairs are necessary, both pumps will be removed, and when the pumps are removed, we will repair both pumps and the cross-over seal.

Q Do you know of instances where this arrangement has been used in other installations?

A The principal of the cross-over assembly has been accepted by the industry for a number of years. In 1954 Mr. Taylor and Mr. Robins with Otis pressure control gave a paper on subsurface pumps, zone pumps, at the West Texas Oil Short Course In Oil Lifting Methods in 1954, and at that time Otis had installed a number of -- quite a number of these type of installations, utilizing a cross-over assembly. Mr. Van Horn, with Cities Service, reported in the World Oil of May, '58 on their installation -- dual installation utilizing this cross-over assembly in the Goldsmith Field. They had some seven or eight installations operating that had been operating for a year and a half to two years. If I am not mistaken, he also presented his paper at the West Texas Oil Short Course In Oil Lifting Methods this year, in 1958. Also in January, '56, in the Petroleum Engineer, Mr. Mener, with Anglo American Exploration Limited in Canada, reports on pumping dual wells in Canada utilizing the same cross-over assembly.

Q Now, these publications and papers that you made reference to, deal with the same type of assembly that we're discussing here?

A They utilized the basic cross-over seal and pack-off assembly. Some of them have used the parallel string and others have used an upper packer which allowed the production from the lower zone to be crossed over into the annulus and produced to the surface. We do not propose to use the upper packer because the upper zone has such a gas-oil ratio that we will be able to hit pump efficiency to produce it, if we use it at the installation.

Q Is it feasible to use a two rod string in this well in order to accomplish the dual completion?

A In order to use two and a sixteenth inch parallel strings, we would require that a string of one inch Hydril "CS" be run to vent the gas from the lower zone. There wouldn't be sufficient clearance for extrapolation of any smaller size. Therefore, it would have to be an independent string. That is the only string within a string that could stand the depth. We would end up with a landing arrangement for our one inch to vent the gas, and we would have so small a clearance throughout the full length from the three thousand foot, referring you back to Exhibit 2, where the five and a half starts, we would have to -- below the upper zone, we would have such a small clearance that any fishing job would probably result in a junk hole.

Q You have an example there of what your clearance is insofar as this casing is concerned?

A Prior to leaving Hobbs, this is the only one I had. It is the small clearance that you have between the two strings, two and

a sixteenth inch strings, and with any casing, it would make a very complicated fishing job, and the risk involved of a junked hole which would require abandonment of the well are such that we feel like the proposed method which has only one spot of increased possibility of having trouble -- in other words, the clearance at this point is tied for one spot instead of the 2,600 feet. We feel like we will reduce the risk considerably enough to warrant this installation over two string installation. Another disadvantage of the two strings installation is the additional cost, although the one inch could be removed separately to pull the lower two and a sixteenths inch because of the landing arrangement. The one inch would require the resking of the upper zone tubing past three thousand feet to allow clearance for the landing assembly to be recovered from the hole, so it would be in effect -- we would be back to increased cost.

Q Would you -- going back to this packer assembly again, would you explain to us exactly what differentials you have as between the two zones at actual operating pressures?

A The hydrastatic head pressure exerted at this point by this here is 1975 pounds. That means that there has to be 1975 pounds to raise this valve. That means that there is that much exerted here. We estimate 2000 pounds upper pressure, so that would be 2000 pounds exerted here. It is 1975 here.

Q You have mathematically, then, 25,000 pounds differential, is that correct?

A At puming operation.

Q Do you propose to operate these pumps continuously or at intervals?

A They will be sized so that they will be in continuous operation. We presently are producing the lower zone on that basis because it takes that way to get its allowable, it comes in slowly instead of building up.

Q What arrangement would be made, other than pump size that you speak of, for one zone making its allowable prior to another zone, or vice versa?

A Of course, you already mentioned the arrangement of the pump sizes to allow the amount of production you want. We anticipate the upper zone reaching its production first, and it will be so sized, and we will bypass back into the annulus any production from the zone, overproduction from that zone. There is also a production tool, I call it production regulator, which you fit above on to the top of your plunger. It serves as your travel valve. It is spring loaded so that when you reach your production, you shut in the string, the flow line, and as the pressure builds up, it activates this spring and causes the valve to stand open and allows the pump to reactivate without producing. It would be applicable only in the lower zone. If applied in the upper zone, we wouldn't be able to shut in our flow line to test our packer assembly.

Q That is to accomplish the test that you mentioned earlier on pressure buildup and that sort of test, is that right?

A That's right. The most accepted way which we will use first

is sizing the pumps to where the upper zone will produce its allowable first and bypassing it back down. We anticipate having to pump the upper zone because the offset operator has already installed a pump. Out of the one hundred wells in the Terry-Blinebry Field, only twenty-two pump. There is a chance there that the upper zone might flow.

Q Which, of course, would mean at least the temporary dispensing with the upper zone pump?

A That's right, and we would be able to shut in at any time without worrying about the pumping cycle.

Q Now, I call your attention and that of the Examiner's to Exhibit No. 5, and ask you to identify it and explain what those figures represent and what was taken into consideration with reference to the economics -- the operation of these two zones either by two wells or under the proposed system.

A Exhibit 5 is an oil reserves and economics of the Stephens Estate No. 1. It shows the reservoir information for the Blinebry that was used to figure the stock standing barrels in place and the oil reserves, recoverable reserves and the profit or loss from a single well in the Blinebry versus a dual completion in the Abo and the Blinebry. The factors used in computing the Blinebry reserves are those used in accepted engineering practice for volumetric calculation of oil in place. We show that the Blinebry has 267 stock barrels of oil per acre foot; recoverable reserves 40 acres, 45,000 barrels, estimated 45,000 barrels with 450,000 MCF of gas. The Abo

reserves are estimated at 19,000 barrels as of January 1st, 1958.

Q What conclusion did you reach as a result of making this study?

A A single well would show a loss of \$5,262 before income credit, while the dual completion should show a profit of \$80,719, provided that my recoverable reserves are accurate.

Q Is it your opinion that your company's lease is presently being drained by offset operators?

A Yes, it is. The operator to the north, Gulf in this case, has produced -- as of March 1st -- has produced 11,602 barrels from their No. 2 -- Stephens No. 2.

Q That's the offset well directly north?

A That's right.

Q Is your company drilling any other wells in this area?

A Since preparation of this map, we started a well in the southwest of the southwest of Section 24, one location south of the well in question. We drilled it to the Blinbry and the Tubb as a proposed dual completion. A meeting offset to the offset of the Stephens Estate Well No. 2.

Q Well, now you spoke of dual completion. So far as that well is concerned, do you propose at this time to make an application for the use of the same sort of program insofar as that well is concerned?

A No, sir. We anticipate a dual completion in that well and have set seven-eighths casing to permit the running of two strings

of tubing.

Q Why was that?

A Well, the -- at the time this Stephens Estate 1 was drilled, we were meeting Abo offsets, and that was the only production in the area. We drilled usually a minimum program. In order to cut cost at that time, we set five and a half inch casing liner, and in the new well, we, in order to insure a better dual completion, we set two strings. We anticipated it and set it up for that.

Q Now, again, with reference to the economic question insofar as this well is concerned, particular well, could the failure to produce from the Blinebry under the proposed arrangement result in premature abandonment of the present well?

A Yes. If we are unable to dual complete this well, the royalty owners have informed us that we have to meet the Blinebry obligation, and if that is the case, it will mean the abandonment -- either the abandonment of 19,000 Abo reserves or the paying of compensating royalty until such time as we produce these reserves.

Q That would result not only in economic waste but physical waste as well, is that correct?

A That's right.

Q Again with reference to the same subject, do you anticipate that more oil will actually be produced from the lower formation as the result of the use of this program than would be produced as a result of production from two wells?

A As a result of this program, the lifting cost will be spread

between two zones instead of one. Therefore, we should have the same or lower per barrel cost, lifting cost, that we now have. With a lower lifting cost, we will be able to produce the lower zone longer than we would if we had a single completion.

Q Do you have -- again, with reference to the assembly itself, do you have any appreciable paraffin or corrosion problems?

A We have no corrosion problems in the Abo and none anticipated in the Blinebry. The offset operators have not experienced any. The paraffin problem, we don't have any paraffin problem in the Abo and the offset operators have not experienced any in the Blinebry to our knowledge. It is possible to limit your paraffin problems by installation of scrapers on your upper portion of your rod strings. The one inch tubing can be treated with a wire line knife arrangement, or by hot oiling the upper zone, and can also be treated by pumping hot oil down the annulus.

Q Now, I call your attention to Exhibit 6 which appears to indicate the present status of offset wells.

A Exhibit 6 was prepared to show the status of offset wells of the wells shown in Exhibit 1. This is a multipay area, and because of that, each operator will get the maximum he can from each well. The Gulf, on their Stephens lease to the north of Magnolia's lease, Section 24, operate three wells in the Terry-Blinebry. They are presently producing 29, 29 and 24 barrels per day. The Sinclair Sarkey No. 3 in Section 23 offsets Magnolia Stephens Estate No. 1 is presently producing 63 barrels a day. Wait a minute,

that's four barrels a day. The other one was their Barton No. 3. The Olson Sarkey lease in Section 25, their No. 2 is presently completed as a Tubb well and my understanding is that they also have made application for dual completion in the Blinebry. Their No. 2 is making 14 barrels a day from the Tubb.

Q On the basis of this information, to some extent, at least, you have projected your economic study as well as what might be anticipated so far as drainage and other pertinent factors are concerned?

A That's right. As of the 1st of the year, as of January 1st, Magnolia had only produced some 49,000 barrels from their Stephens Estate No. 1, which was hardly enough to pay for it. The dual completion of this well will allow us to offset and complete payout of this well. The Gulf wells to the north in the Blinebry Field have produced cumulative -- No. 1 has produced 14,000 barrels; No. 2 has, as I previously stated, 11,602, and their No. 3, 24,502. That was as of March 1st.

MR. SPERLING: We would like to offer Exhibits 1 through 6 at this time in evidence.

MR. UTZ: Without objection they will be received.

MR. SPERLING: That's all the questions at this time. I neglected to mention Exhibit No. 7, so it will be 1 through 7.

MR. UTZ: It will also be accepted.

Q (By Mr. Sperling) You made reference, Mr. Sanders, to some publications, and I believe the Short Course On Oil Lifting Methods.

It is my understanding that you have only one copy of each available, but that you could provide copies to the Commission upon request.

A I can if they wish them. I can submit them later.

Q And your reference in one case was to World Oil, May of 1958, and to the proceedings of the West Texas Short Course On Oil Lifting Methods sponsored by the Department of Petroleum engineering Texas Tech. College April 22, 23, 1954, Lubbock, Texas?

A That's right.

Q And you also made reference to the Petroleum Engineer January, 1956, concerning the use of similar installations in Canada?

A That's right.

Q And they can also be made available upon request?

A That's right.

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

MR. UTZ: Could you furnish copies of those articles?

A Just as soon as I get copies I will send them out.

MR. UTZ: All right, if you will, please.

MR. SPERLING: That is all.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Sanders, what was the gravity of the Abo Section?

A 42.3 at 60 degrees Fahrenheit.

Q The bottom hole pressure was 500 pounds?

A Or less. We have to estimate that. Our well has not --

has been pumping for a considerable length of time and there has been no pressure taken of the offset wells. Sinclair Sarkey No. 3 had a pressure taken in '56, and was 1283 pounds, if my memory serves me correct on that, and last year at survey time it was on the pump and they didn't take the pressure.

Q And the pressure on the -- anticipated pressure on the Terry-Blinebry is 2,000?

A 2,000. Original pressure was 2400 pounds in the Terry-Blinebry.

Q When was this well completed?

A Completed in July of 1952.

Q Five and a half inch line set at that time?

A It was, and circulated.

Q You do not know whether you anticipate dualing that well at that time?

A No, sir. At the time we drilled our well we were offset to the north, the northwest, and to the west with Abo wells. And then we drilled a well to that zone not anticipating any further production.

Q Mr. Sanders, referring to your Exhibit No. 4, how many points of seal do you have to have in order to have a sure complete separation between the two zones?

A We have to have five points of seal.

Q There are five?

A Two on the parallel strings, two in the cross-over assembly --

excuse me, that's six -- one at the -- where your tubing goes into your packer and the packer itself.

Q Right here?

A Yes, the packer itself is two, two in the parallel strings, and two in the cross-over assembly.

Q One is at the landing head?

A And one beyond the landing head. There is two seals in the one inch tubing, there is an upper seal and a lower seal.

Q Now, in an ordinary two string dual completion, how many points of leakage are there?

A In an ordinary string it doesn't require a gas vent. There are two, both located at the packer; packer seal against the casing, and the seal on the tubing. A parallel installation with a gas vent has three.

Q So this type of completion does offer a lot more possibilities for communications?

A It does offer possibilities of communications. The sitting arrangement on the one inch tubing are the standard sitting cups used on pumps. Those pumps have proven themselves to seal. We have used them throughout the industry for a number of years as sitting cups for pumps. We know that they hold, because when we start out pumping units, we get a delivery of production. On the first reciprocation of the rod strings, if they weren't holding, we would have leakage and we would have to pump the well up.

Q Are there any abrasives of any nature in the fluids from

the Abo formation?

A No, sir, not as such. There is no sand problem and there is no partial problem in that formation.

Q Are there any abrasives that you know of that will be possible in the Terry-Blinbry formation?

A Not to my knowledge.

Q So you don't feel that abrasive action in the packer assembly with the reciprocating rod would be a problem?

A No, sir, I don't. We feel like using metal metal pumps, that we are using, that the water on the pumps will be as fast or faster than the pack-off assembly, and that will require pulling the pump for repair prior to any leakage to the pack-off assembly.

Q Do you intend to use metal to metal in this --

A We anticipate using metal to metal at the beginning. If we have any difficulty with that we will -- in other words, if the life of the pack-off assembly is such that it requires the installation be pulled from the pack-off assembly, we will test the other two types of packing, and in the end use the one that gives us the best service. We are using metal to metal pump pluggers, and we feel that we would get as good a life with the metal to metal, and then, too, the manufacturer in this case supplies metal to metal principally.

Q And that assembly is 18 inches long with one-thousandths clearance?

A No, it is 36 inches long with one-thousandths clearance, the

packing assembly where you use the other two materials is 18 inches.

Q What diameter is the tubing at this point?

A I believe that's an inch and an eighth.

Q With the one-thousandth clearance on an inch and eighth rod, 36 inch bearing surface, isn't that a pretty close tolerance for that length of varying surface in regard to alignment to prevent bending?

A It will be precision fit. The manufacturer's specifications are what it will be fit to, and it gives you room enough for an oil seal for oil to be supplied throughout the length of it. I don't think it will bind. In fact, there is enough weight below on the lower pump to insure straight string up or down, whichever the case may be whenever this action is taken, when the head of the pumping unit is going up.

Q In case it should bind, that would probably cause excessive wear?

A That's right. If it would cause excessive wear, we would get an indication of communication and would have to pull it.

Q I believe you stated that you were not sure whether or not the Terry-Blinbry zone would flow?

A That's right, sir. The offset well flowed for -- I am not sure how long it flowed, but it did flow for a while and they now have a pumping unit over the well to cause it to flow, or have to pump it all the time, I don't know.

Q If it did flow, you would not install the upper pump as-

sembly?

A That is right. If it does flow, we will not install the upper pumping unit.

Q Mr. Sanders, have you investigated all other types of pumps toward the end of using twin string pump equipment in this well?

A I investigated the use of a small pump in each zone, utilizing the two and a sixteenth Hydril "CS." We can pump it by taping our strings above our two and a sixteenth after we get out our five and a half liner adding on two inch EUE. We can get a supply hole challenger inch and a quarter pump that can be run. The gas problem that we have in that pump in a formation that has 2,667 to 1 ratio, is that it would result in gas locking the pump unless a gas vent is provided.

Q It is necessary to put the gas vent in the third string?

A It has been our experience that it has been necessary to provide a gas vent.

Q Do you feel that that type of completion would be a practical type of completion aside from economics?

A I feel like this is a most practical application for producing these two zones under these conditions. I've investigated the use of gas lift. Magnolia, to my knowledge, doesn't have any of these installed, but the industry, as a whole, has sufficient installation of these cross-overs to prove that they will operate. We feel like if we had any other method, we wouldn't ask for it this way, but we are faced with poor low pressure, poor lower zone

that will not rise sufficiently to allow us to use two packers and gas lift. Normally, our installations have utilized gas lift in cases such as this.

Q If you were drilling this well over at this time, knowing that you had to dually complete it, would you recommend this type of completion?

A I would recommend setting seven inch casing in this well.

Q Then, you are recommending this type of completion only because the well is now completed in the small five and a half inch liner?

A Right, because we have such a small casing that we feel this is the most practical method of producing.

Q And you wouldn't recommend this type of completion for a new dually completed well?

A Starting from design of the installation, looking at the economics of it all, I don't believe I would. It might be economic -- the economics of running seven inch might be such that this might be the most economical way to be able to pay the well out, and it may be attractive under those conditions.

Q You consider this somewhat of a salvage operation?

A That is right. We only produced 49,000 barrels from the Abo; we only anticipate 45,000 from the Blinebry, providing it will produce that much. Therefore, we feel like it is salvage.

Q You wouldn't recommend this type of installation under any other circumstances except a salvage operation?

A That's right.

Q Now, on your Exhibit No. 5, I note that you have calculated the Abo reserves on the basis of decline.

A We have drilled in 52, and I hesitate to use the word marginal, but it has been a limited capacity well quite a bit of that period. We have an excellent decline curve on it, the well was reconditioned, worked over in December of '57 to assure that we would be able to produce all of the recoverable reserves, and on the basis of the decline curve, why that's our estimation of the reserves.

Q What was the original Abo pressure bottom hole?

A I am just afraid I don't know exactly what it was.

Q Can you give me an idea of what the decline was?

A Well, I know the offset well in '56 had 1,283. I would anticipate it was probably in the neighborhood of 22,500.

Q At the time you drilled this well?

A Yes.

Q So, your decline was from around 22,500 to 500 pounds?

A Yes, 2500, not 22,500.

Q 2,500?

A In other words, we have had a decline of over 2,000 pounds with the production of only 49,000 barrels of oil.

Q That's for 40 acres?

A That's for 40 acres. Of course, the estimate is independent of the acreage, it is based strictly on the producing capacity

out the expense of drilling two wells.

There should be little doubt as to the initial savings made in drilling one hole and dually completing a multiple zone well. It is believed that the era of dual pump wells actually is in its infancy and will grow to take its place among the other standard producing methods in the petroleum industry." This was in '54.

Q unless you are allowed to dually complete this well in this manner you feel there will be waste of oil, that is, waste of oil left in the ground?

A We feel like there will be oil left in the ground.

MR. UTZ: Are there any questions of the witness? If not, the witness will be excused.

(Witness excused)

MR. UTZ: Are there any other statements in this case? If not, the case will be taken under advisement. And let's take five and let the Reporter rest.

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 1st day of July, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

J. A. Trujillo

NOTARY PUBLIC

My Commission Expires:

October 5, 1960

I do hereby certify that the foregoing is a complete report of the proceedings in the Examiner hearing of Case No. 1953 heard by me on May 28, 1958.

Thomas W. ...

Examiner
New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

July 11, 1958

Mr. James E. Sperling
P.O. Box 466
Albuquerque, New Mexico

Dear Mr. Sperling:

On behalf of your client, Magnolia Petroleum Company,
we enclose two copies of Order R-1216 issued July 11th, 1958, by
the Oil Conservation Commission in Case 1453.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

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