BEFORE THE
OIL CONSERVATION COMMISSION
September 21, 1960

Examiner Hearing

IN THE MATTER OF:

Application of Chambers & Kennedy for an oil-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Monterey State Well No. 2, Unit D, Section 32, Township 18 South, Range 31 East, Eddy County, New Mexico, in such a manner as to permit the production of oil from an undesignated Yates oil pool and the production of oil from the North Shugard Queen-Grayburg Pool through parallel strings of 1½-inch and 2 3/8-inch tubing respectively.

CASE NO. 2078

BEFORE:

Daniel S. Nutter, Examiner
Oliver E. Payne

TRANSCRIPT OF PROCEEDINGS

MR. NUTTER: We will call next Case 2078.

MR. PAYNE: Application of Chambers & Kennedy for an oil-oil dual completion.

MR. McKENNA: I am Tom McKenna, appearing for the applicant. I have one witness, Mr. William Jackson Alexander. I believe we will have only one exhibit and I would like to have this marked for identification as Exhibit 1.

(Whereupon, Applicant's Exhibit Number 1 was marked for identification.)

(Witness sworn.)

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WILLIAM JACKSON ALEXANDER

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

DIRECT EXAMINATION

BY MR. McKENNA:

Q Will you state your name, please?

A William Jackson Alexander.

Q Where do you reside?

A Odessa, Texas.

Q And for whom are you employed?

A Chambers & Kennedy.

Q Have you testified before this Commission at any other time?

A I have not.

Q What is your age, Mr. Alexander?

A Thirty-six.

Q And can you advise the Examiner what your employment is with Chambers & Kennedy?

A I am an Engineer and Production Superintendent for the Company. I supervise the drilling and completion of our wells, the

work-over activities that we have and the purchasing and installation of equipment.

Q What is your education, Mr. Alexander?

A I am a graduate, I have a Petroleum degree from Texas A & M College, June 1950.

Q Can you tell the Examiner something of your employment record?

A After graduation I was employed by the Ohio Oil Company as field engineer doing wire line, gas-oil ratios and running and cementing of casing. Afterwards I worked for British American Oil Producing Company as field engineer and as production foreman prior to going to work for Chambers and Kennedy in 1957.

MR. McKENNA: Mr. Examiner, I move his qualifications be accepted as an expert.

MR. NUTTER: The witness is qualified, please proceed.

Q (By Mr. McKenna) Mr. Alexander, have you supervised the present order, the drilling of the Monterey on the State Number 2?

A I have supervised the drilling and running of the casing and the cementing is the same on this well.

Q Have you prepared, or at your direction has a diagrammatic sketch of the proposed completion been prepared?

A It has been prepared, which I would like to refer to if the Commission would care to follow a diagram showing our 8 5/8 casing set at 805 feet, cementing to surface. 5 1/2-inch casing

cemented at 3500 feet with the top of the cement at 2023 feet by temporary survey, a knot made about midway up. The proposed installation, what we would like to make is two strings of tubing, which is manufactured by Texas Tube Corporation in Houston. It is an integral joint tubing and is the only type that we can get of these two sizes in this particular size, in the hole. 2 3/8 would be run to the lower zone, which is the Penrose, which is from 3448 to 3463, and it is presently perforated and producing from the interval of 3448 to 3462. This zone has been producing for nearly a year at the present time. The second zone which we propose to dual complete with is the Yates zone at an interval from 2625 to 2635 which has not yet been perforated, which would be produced through 1 1/2-inch tubing, pumped with 1/2-inch sucker rods with 1 1/2 insert pump.

Q Mr. Alexander, where will, can you describe where your packer will be?

A The packer would be roughly 2650 feet.

Q What type of packer do you contemplate using?

A We propose to use a Brown By-pass packer, which is the sheet immediately before the diagrammatic sketch, the Brown By-pass packer, and the primary reason for using this packer is the fact that the gas from immediately below the packer may be vented through it and then back into the 2 3/8-inch tubing whereby we should experience less trouble with the lower pump attempting to give us any gas lock problem. If you like, I would point out this by-pass

this by-pass comes right up the mandrel behind your rubber through this area here, this is your by-pass, it comes right up here and ties in, although it is not shown on this diagram, it ties into your 2 3/8-inch tubing. There is no calculations that will show why it does it, other than in actual practice. Where you got a reasonable amount of volume for the gas to collect in, in which in this instance we have 600 feet, why the gas will collect and vent off and you will not have to handle it through the pump and thereby gives you a more efficient pumping operation for your lower zone.

Q That packer, also this type of packer facilitate any future clean out problems, is that one of the reasons why you suggest that?

A This is a retrievable packer and in view of the lower sand has fracked there as a possibility it might have to be cleaned out from time to time. We would be able to retrieve this packer and not have to drill it out as we would a permanent packer. Thereby, sand pump this zone due to the fact these pays once they are fracked do not have enough bottom hole pressure to establish a full column of fluid, thereby, prohibiting the process of reversing out sand with oil. It is almost a necessity to get the sand out of the hole with the sand pump.

Q Do you contemplate any corrosion problems?

A We do not. This well was pulled recently to change the pump in it and in it we found no indication of any corrosion of sucker rods, pump or tubing.

Q Have you conducted any tests to determine if there are any casing leaks?

A The casing was pressure tested prior to the time it was perforated and at that time had no leaks.

Q Can you advise the Examiner your plans for segregating the common sources of supply and to prevent the commingling of hydrocarbons from these zones?

A On this at the present time we have a well producing from the Yates and we would propose, we would use a flow line to the battery in which the number 1 well is producing from the Yates pay.

Q Do you contemplate any gas or water problems in the dual completions?

A I do not, there are other wells producing in the area and so far none of these zones have shown any problems of water encroachment.

Q Can you state your opinion as to whether or not the proposed dual, particularly the 1½, whether or not such will efficiently produce and drain the reservoir?

A I believe it will. We have the calculations here which were furnished me by the Continental Company. The pump department, which shows the equipment we propose maybe operated at three different pump speeds. We have calculated it first of all on twenty strokes a minute and about a third of the way up on the right hand side you will find the volume of fluids that may be

moved. It is a volume fluid that moved at twenty strokes a minute, which is 56.5 gallons a day. The second indication 16½, which is 45 gallons a day and 14 strokes a minute, we will be able to move 38 2/10 barrels a day of production. These calculations are on pumping of water from the pump, which we have taken into account of any energy from, deprived from the gas and certainly water. It takes more energy to move water than of course oil. So we conclude that if we can move this volume of fluid that we can adequately drain that reservoir of any amount of allowable that may be established for these zones in the foreseeable future.

Q Did you state whether or not this proposed dual completion is in keeping with the principles of conservation?

A One of the motivating facts as far as we are concerned at the time in the course of conservation is that it is more economical to install this type of equipment thereby having a better atmosphere for dual completions and for completing more zones in this field. By this type of installation we can offer the other type that is available. We can save $3,842.81 on the cost of tubing itself, which will amount to 89.45% saving between the two installations, and the two installations I am speaking, we can run two strings of high, dry type C5 tubing or we can run these two strings that we have been discussing, which is a string of 2 3/8 and string of 1 1/2 textol.

Q Will the tubing completion in any manner impair or injure correlative rights in your opinion?

A I do not think so.

Q The witness does have logs with him, is it the desire of the Examiner these be introduced and made part of the record?

MR. NUTTER: I think we will, I would like to see the logs.

MR. McKENNA: May I have number one marked and received?

MR. NUTTER: Was this a package number one?

MR. McKENNA: Yes, it includes the letter for the retrievable packer and the pumping information.

MR. NUTTER: Exhibit Number 1 comprises a diagrammatic sketch brochure, the Brown by-pass packer and includes three calculations of pump capacity for the 1 1/4-inch pump and a letter from Chambers & Kennedy?

MR. McKENNA: Yes.

MR. NUTTER: This exhibit will be admitted into evidence.

Q (By Mr. McKenna) Mr. Alexander, can you comply with the request of the Examiner as to the logs and make available to the Examiner for inspection?

A I have a log run by the Western Company, a gammatron log a simultaneously radioactive in it. We have marked off in red showing the top and bottom of the two respective pays and the perforations that now exist in the Penrose pay.

MR. NUTTER: Do you want this identified as Exhibit Number 2?

MR. McKENNA: Yes.

(Whereupon, Applicant's Exhibit Number 2 was marked for identification.)

MR. NUTTER: The porosity is indicated in red?

A Yes.

MR. NUTTER: Very good. Do you have anything further?

MR. McKENNA: No, I move that Exhibit Number 2 be marked for identification and be admitted into evidence.

MR. NUTTER: Exhibit Number 2 will be admitted. Does anyone have any questions of the witness? Mr. Payne.

BY MR. PAYNE:

Q Mr. Alexander, do you have actual or approximate gas-oil ratios for both zones?

A We have not taken a gas-oil ratio of cores of the upper zone because it has not been completed. The lower zone produces the gas-oil ratio of about 315.

Q Are offset wells completed in the upper zone that you have any information on relative to gas-oil ratios?

A We have our Well Number 1 which is about a half mile to the south, although it is a poor interval and it has a gas-oil ratio of 218.

Q Now, what were the gravities, Mr. Alexander?

A They run in the neighborhood of around 28 degrees API.

Q Both zones?

A That is, would be the upper zone or the Yates, and the lower zone it runs around 30½.

Q Now, what will the differential pressure be at the packer?

A I anticipate very little differential pressure in view of the fact both zones are very weak, as none of the wells in the area flow to my knowledge.

Q So you are going to pump both zones, is that right?

A That is correct.

Q This pump packer you propose to use, did you take a pressure leakage test?

A Yes, sir.

Q How do you unseat this type of packer?

A Picking up on the tubing.

Q You say it is more efficient in the matter of pumping. Would you say it is as efficient in separating the two sources of supply?

A I think it is. A hook wall packer is a standard piece of equipment in the oil field and has been used for years and years. I think the primary advent of a wire line or a permanent type packer has been in deep well completions. That is why if your tubing is over stressed in the event you want to retrieve it and for that reason a permanent type packer was primarily developed, this type of packer has been in use in the oil field for thirty or forty years.

Q And is your hole big enough to run parallel strings of tubing, rather than utilizing the packer?

A I don't follow your question.

Q Is your hole big enough to run parallel strings of tubing and cement them in the common well bore without utilizing a packer?

A They are. I do know, I think we would want to cement our tubing in the hole for the fact we may want to retrieve it and we can clean out these zones of cores. Once you run tubing and cement it would be impossible then to do any remedial work on either zone.

Q You did consider the possibility of the other type completion?

A I think the type completion, are we speaking of the type of completion that was just discussed?

Q Yes, sir.

A Of course, in that type of completion you do not have casings in the holes such as we have here.

Q This well has already been completed and has the casing cemented in?

A This well has been producing for about a year now.

Q And the lower zone was sand fracked?

A That is correct.

Q You feel from time to time you may have tc stimulate?

A The possibility in any sand fracking operation that the sand may come back on you and you should leave your seal in the position to clean out of the well bottom, it can build up to the point it will restrict production.

BY MR. PORTER:

Q What is the capacity of your well? What is the producing

capacity of the present well which is completed in the Shugart pool?

A That lower zone, or the Penrose, will presenty make 48 barrels per day.

Q You don't have it out open of the Grayburg, the Queen?

A Open in the interval from 3448 to 3862.

Q It produces how much?

A 48 barrels a day.

Q Been on production about a year?

A Yes, sir.

Q Isn't that considered pretty good in this area?

A A very good well. The fact of the matter, our Well Number 3 to the east, we feel like it will be equally as good, and some wells to the north and northeast that are very good wells.

Q Do you contemplate duals on the other wells?

A We contemplate the possibility of dualing our Number 3. Our Number 1 to the half mile to the south does not have the interval in that well, we do not contemplate a dual on it.

Q What kind of show did you get in the Yates?

A In this particular Yates we made 16 gallons per hour, the Baylor test.

Q I think the pressure there is somewhere near the one you quoted the gas-oil ratio of 215 or 240 or something like that?

A The gas-oil ratios generally in this area will all run in the magnitude of less than 400.

MR. PORTER: Thank you.

BY MR. NUTTER:

Q Mr. Alexander, do I understand correctly that the gas venting feature of this Brown packer is sufficient that the gas comes out of the casing tubing annulus below the packer comes up through the packer and then into the 2 3/8-inch tubing?

A That is correct. And therefore the gas will be produced with the oil as it would be whether it was flowing on pumped through the pump by venting it above the packer and without having to handle through the pump, you should have less trouble.

Q And the casing tubing annulus on the upper zone will be a conventional type of annulus that can be vented?

A That is correct.

Q Now, these calculations that you gave for the capacity of the 1 1/2 and 1 1/4 pumps of various strokes per minute are lift or for the total depth?

A Pumping water from total depth, 2600 feet.

Q What is the producing history of the well Yates Sand in this area?

A Hasn't been any water encroachment.

Q How long long has this area been on production?

A Our Number 1 Well has been on production, let's see, about eight months, I believe it has been in the Yates pay. There are some other wells, Mr. O'Neill had a well over to the west of us that was dualed, I believe about a year and a half ago and they have, although it has been a weak well, have not experienced any

trouble with water.

Q Are they making water?

A No.

Q No water at all?

A No. To the north of us a piece there are a couple of Yates wells, they have not shown any water trouble. Our Number 1 Well is to the closest well that we have any history from the Yates.

Q And it produces oil only?

A That is correct. The reason we have shown these pumping productions, these pumping volumes at 20 barrels, I mean at 20 strokes per minute, we would be able to raise 56 barrels of fluid which means 50 water and oil and recover the allowable as it now exists to show that we can adequately drain that reservoir.

Q You got the capacity here for 56½ barrels a day, but if you went to 10 barrels of oil and 40 or 50 barrels of water you might run into some trouble. A higher water cut than that even. However, you anticipate no water difficulties in the area from the known history?

A That is correct. From the known production histories of the other wells we do not anticipate that kind of water problem.

Q Now, what size of sucker rods do you use on a pump of one half inch?

A One half inch?

Q This sheet also shows that we would only have a peak 12,100 pounds. Half inch sucker rods would carry it?

A We hit our high stress, we would be stressing our rods at 16,500 PSI and those rods are good for 29,000 PSI, so we are just hardly reaching over half the stress those rods are capable of standing at 20 strokes a minute. 20 inch stroke, if we found it necessary to raise a greater volume of fluid we can go from 26 inch to 36 inch stroke and still our stress would not exceed our 29,000 PSI.

Q These calculations are based on rather short strokes?

A Yes, they are based on the 26 inch stroke.

Q Now, you stated that the packer was released by picking up on the tubing. How is the packer set?

A We have here a little bit of a discussion here on this packer, and how it operates, of course, it has a J in it, it is operated just by opening and closing the J and reciprocate it up and down.

Q Does it have a set of slips on it?

A Yes, they are pictured in the cross section, all cut there.

Q And has a sealing rubber?

A Yes, it does.

MR. NUTTER: Are there any further questions of Mr. Alexander? If there are no questions, you may be excused.

(Witness excused.)

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

MR. McKENNA: No.

MR. NUTTER: Mr. McKenna, I would like to make one request,

we be furnished permanent type photostats of the diagrammatic sketch and also of the three calculations.

MR. McKENNA: We have the original.

MR. NUTTER: This will be identified as the exhibit then.

MR. McKENNA: All right.

MR. NUTTER: Does anyone have anything further for Case 2078? We will take the case under advisement and take Case 2077.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, LEW NELSON, 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 Oil Conservation Commission was reported by me in stenotype and reduced to typewritten transcript by me and/or under my personal supervision and that the same is a true record to the best of my knowledge, skill and ability.

Witness my hand and seal this the 30 day of September, 1960, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Lucille F. Nelson
NOTARY PUBLIC

My Commission Expires:
June 14, 1964

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2078, heard by me on 9/21, 1960.

....., Examiner
New Mexico Oil Conservation Commission

I N D E X