

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
October 4, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Reading and Bates, Inc. for
a temporary exception to Rule 107 (d), Eddy
County, New Mexico. Applicant, in the
above-styled cause, seeks a temporary
exception to Rule 107 (d) to permit the
production of oil from its Simms Federal
Well No. 1 located in Section 34, Township
18 South, Range 30 East, North Benson Queen
Pool, Eddy County, New Mexico, without
installing tubing.

CASE NO.
2397

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

EXAMINER UTZ: We call Case No. 2397.

MR. MORRIS: Application of Reading and Bates, Inc.
for a temporary exception to Rule 107 (d), Eddy County, New Mexico.

MR. BRATTON: Howard C. Bratton appearing on behalf
of the Applicant.

We have one witness and ask that he be sworn.

(Witness sworn.)

EXAMINER UTZ: Are there other appearances in the
case?

Let the record show there are none.

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You may proceed.

D. L. POTTER,

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

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, by whom you are employed, and in what capacity?

A D. L. Potter. I am employed by Reading and Bates, Inc. as exploration geologist and also in their field operations with respect to completions and a certain amount of production work.

Q You have previously testified before this Commission?

A No, sir.

Q State very briefly your educational and professional background.

A I have a B.S. degree in geology from the University of Kansas. I was employed approximately eighteen years with Phillips Petroleum Company as superintendent of land and geological operations, and I am now employed by Reading and Bates as of the first of May, 1961.

Q Are you familiar with Reading and Bates' drilling operations, including the operation on the well which is the subject of this hearing?

A Yes, sir.

MR. BRATTON: Are the witness's qualifications

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acceptable?

EXAMINER UTZ: Yes, sir, they are.

Q (By Mr. Bratton) State very briefly, to begin with, Mr. Potter, what is the request in this case.

A The request is a desire on the part of the Applicant to continue production of the Simms No. 1 Well without tubing that is presently producing through the casing, 5 1/2-inch casing, which has affixed to the top a three-way frac head.

Q Mr. Potter, before we get into that, it's basically for a temporary exception to producing the well through the casing?

A Yes, sir.

Q Now, with reference to the plat that's been made Exhibit 1, does that show the location of the subject well?

A Yes, sir, it does.

Q And the surrounding wells?

A Yes.

Q And that well --

A Perhaps the surrounding wells are not on that plat.
May I look at that just a second here?

Yes, the offset wells are there.

Q The location of the subject well is in the northeast, northwest of 34, 18 South, 30 East?

A That's correct, Eddy County.

Q Now, reference next, Mr. Potter, to what has been

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marked as Applicant's Exhibit No. 2, which is an outline of the request. Detail the request, if you please, sir.

A Reading and Bates, Inc., are the operators of the Simms Federal Well No. 1 located in Section 34, Township 18 South, Range 30 East, North Benson Queen Pool, Eddy County, New Mexico.

On this plat you will notice that this well is actually adjacent to the present boundaries of the North Benson Pool. However, the proration officer has requested that we file a form to include certain other acreage of which 40 acres in which this well is drilled is a part, and that has been done. However, we have not yet received any notification that the pool boundaries have been changed.

This is Eddy County. Reading and Bates, by letter, has requested an exception to Rule 107(d) of the Rules and Regulations to permit production of oil from Queen Formation in the Simms Well without installing tubing for a temporary period of up to six months. Shut-in pressures average 550 to 600 pounds. This is surface shut-in pressure, indicating the necessity of killing the well with salt water to make it safely and mechanically possible to change from the Dowell 3-way flathead to which the well is now flowing, to a conventional tubing head.

It is contended that subjecting the producing formation to salt water may be detrimental to the well's producing ability and may ultimately bar the oil recovery from the reservoir. On a recent GOR test, the well produced oil through a 20/64 intimeter

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at the rate of 17.7 barrels per hour, with a maximum GOR of 1,558 cubic feet per barrel. Flooring casing pressure ranged from 380 to 335 pounds. Maximum bottom hole pressure indicated to be approximately 1,669 pounds, assuming a flow column of 37 degree gravity oil. A hole full of 10.2 pounds circulated salt water will exert a pressure of only 1,537 pounds.

It is our contention that continued production of the well through the casing without installing tubing will not be wasteful of solution gas energy, and by postponing the installation of tubing until pressure declines somewhat, possible reservoir damage may be averted. At such time as it is mechanically feasible to place tubing in the well without subjecting the formation to salt water or other fluids other than oil, the well will be tubed.

Q Mr. Potter, was this the first well that you drilled in New Mexico in this area?

A Yes, sir.

Q How did you get into this situation?

A We accepted a farm-out from Simms and lease operators from Artesia, New Mexico, and an option on additional tracts from three other operators, including Texaco, Inc., to drill this initial well, the Simms, primarily in a request for clean oil, and also for possible Grayburg and Premier production. Our farm-out included only those rights down to the Premier.

Q Well, how come your well -- you need to produce it without installing tubing?

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A The circumstances under which the well was completed were as a result of our conversations with other operators in the field service companies, Dowell Well, Cardinal, and Western, the fracture treating companies, which indicated that a high injection rate, a high volume, a high injection rate would be appreciable, and also that high pressures seem to be the rule rather than the exception in the Queen Formation, so that it appeared that a treatment down the casing would be the best method of fracturing this well, and also it appears that the Queen is not notably a high-pressure formation in this area, as there is production approximately three-quarters of a mile southwest, and the hole is approximately three-quarters of a mile northeast. This is on the south edge of the vacuum local hills trend crossing from east to west.

Q So you treated through the casing?

A Yes, sir.

Q And then what?

A Well, after our treatment, the well immediately began to flow back oil and in such an amount that it appeared to be unwise to attempt to change the producing head from a Dowell frac head to a conventional tubing head. To us, at that time, it appeared to be a matter of safety. Also, we had heard in our conversations with other operators that there were other wells which had been produced through the frac head rather than through a tubing head for some period of time.

Q Now, at this point, in order to change the head, you



have got to kill the well?

A The well must be killed completely as there is no method of shutting off production by packer or other means through the Dowell head. It is a tri-head or three-way head, and nothing can be entered into the casing without removing that head.

Q And the only way you can kill it is with salt water, and you are afraid that with such treatment it would take pressure to put the salt water back in the formation?

A That is correct. Now, we could say that there is a possibility the well would become inactive with a lesser amount of fluid than a full salt water column. However, pressures do indicate that a salt water column and some displacement of salt water back into the formation would be needed to overbalance the 1,667 pounds bottom hole pressure indicated.

Q What is your cement program in the well?

A The well was drilled with cable tools. Surface casing was cemented with 50 sacks down to the top of the salt. Approximately 600 feet of 8 5/8-inch casing was run to that 600 foot depth. The hole was then deepened by cable to 3,104 feet, at which point we had a hole full of oil. 5 1/2-inch casing was cemented with 250 sacks, which brought the cement in the annulus space back up to just below the base of the salt.

Q Do you anticipate any corrosion problem during the period of temporary exception requested here?

A No. We don't anticipate any. It's my understanding

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from other operators in the area that the salt section does not present a corrosion problem in this particular area and has not presented one over the general life of the average well in this area.

Q How about your reservoir energy? Do you think you would have excess dissipation during this period of temporary exception?

A The well at the present time is being produced approximately two hours a day through a 20/64ths-inch choke at a rate of about 17 or 18 barrels per hour. The casing stands full of fluid at all times. It does not head during that period of time, so that we feel that production through the casing or production through the tubing would be approximately the same with respect to dissipation of gas energy.

Q Now, referring to what has been marked Exhibit No. 3, are those your computations as to what would be necessary to kill the well?

A Yes. We feel these particular factors would be involved. In other words, the pressure exerted by the 37-degree gravity oil pressure and the water column pressure of 10.2 will be the salt water column. The bottom hole pressure has not been actually taken. As a bottom hole pressure we are assuming a full column of oil plus the measured surface pressure of 600 pounds.

Q Based upon your best indication, it would take salt water to kill the well?



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A Yes.

Q And enough to push it back into the formation to some degree?

A That's right.

Q You have been operating this well under a temporary exception by the local office?

A No, sir, by the office in Santa Fe. It was signed by Mr. Porter. It was a temporary exception granted on September 25, and upon application for the extension, it was extended to October 15th, subject to our appearing at this hearing.

Q In the period of six months would you anticipate that you might be able to safely kill the well and put the tubing in?

A It is difficult to predict the performance of this well as to pressure decline. At the present time we have produced approximately 2,800 barrels only, and there is little or no indication of pressure decline as yet. A period of six months, perhaps, would bring pressure down to a point where we could use a salt water column without displacing any water into the formation.

Q You would try to see what the performance is within that time?

A We could determine the pressure decline on the well, and at such time as it has declined or at such time as the gas production appeared to be -- the GOR appeared to be excessive, we would, of course, then take the risk of formation damage and go ahead and tube the well. We have tubing on location.



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Q In your opinion, Mr. Potter, would there be a chance of losing the well if you were to kill it at this time with sufficient salt water?

A It is, perhaps, remote; however, it is common knowledge in the oil field that you should never kill a well if it can be averted, particularly one that has been treated or fractured; and, of course, any fluid can be incompatible with the formation at any particular location -- other than oil, that is -- so that it is certainly preferable from any operator's standpoint not to kill a well.

Q Did you prepare Exhibits 1 through 3?

A Yes, sir.

Q Is there anything else you would care to state in connection with this application?

A I believe not.

MR. BRATTON: We offer Applicant's Exhibits 1 through 3.

EXAMINER UTZ: Without objection, Exhibits 1 through 3 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits 1 through 3 entered in evidence.)

MR. BRATTON: We have nothing further at this time.

EXAMINATION

BY EXAMINER UTZ:

Q The condition, then, under which you intend to install



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tubing is when you get the pressure down below 1537?

A Yes, sir.

Q How much below 1537?

A We would, I think, be willing to go ahead and install to 1500 pounds.

Q If it's not down to 1500 pounds in six months, what do you propose?

A We will probably request an extension. The conditions for formation damage would not change in that time if the pressure remains the same.

Q Would you propose that this order, if granted, include administrative procedure whereby you might obtain an extension?

A Yes, sir, I believe that would be the most reasonable approach rather than an additional public hearing.

Q What did you say your GOR was?

A 1538. However, that is maximum. The first two hours of production on this well from tests which have been made, indicates a lower GOR than after the production of approximately 35 to 40 barrels. That ratio increases to roughly 1600, possibly a little higher. That is our primary reason for maintaining a 20/64ths choke and producing only two hours. It seems that by unloading the casing to the production allowable of 35 barrels, 34 barrels, we maintain the lowest GOR and also keep the well alive, maintaining a full column in the casing.

Q Is it normal procedure to use a Dowell head for



fraccing?

A It depends on the service company which you use. Others do have heads through which tubing can be stripped. In this case, we used Cardinal on previous fracture treatments that blow down to 3200, and then we used the Dowell Company on this zone at 2930.

Q You can use tubing with a Dowell head?

A Not this particular head. I assume, I don't know whether they do have, but this is one in which we desire the highest volume and consequently the highest injection rate that we could get in this well at two different zones separated by eight feet, was 2930 and 2938, and subjected to a two-stage fracture treatment.

Q You didn't fracture the tubing?

A No, sir, because of the volume. In other words, on subsequent wells, of which we have built two, we have fraced through the casing and the tubing with a small amount of tubing installed in the surface. In other words, five or six hundred feet of tubing down the hole so that additional tubing can be stripped into the well after the fracture treatment. That's s.o.p. with us now.

Q At any time you use a Dowell head, if you don't install tubing when you frac, then you find yourself in this situation?

A Yes, with that particular head, that's right.

EXAMINER UTZ: Are there any other questions of the witness?

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EXAMINATION

BY MR. MORRIS:

Q Mr. Potter, this GOR of roughly 15 or 1600, has that been the GOR that you have experienced in this well since its completion?

A Yes. However, on file you will find one which indicates a lower GOR but which has been recalculated and I am sure has been submitted in error.

Q Do you feel that the GOR is going to increase rapidly?

A No, I don't believe that it will. From its present performance I might explain that this well is perforated in what is apparently a mild clean sand which is not producing nor which is indicated in the surrounding wells. So this, in all probability, is virgin reservoir in spite of production for 10 or 15 years in the adjacent areas.

Q You don't feel that the GOR from the surrounding wells would be analogous to the situation?

A No, sir, because they are not producing from this sand lens.

MR. MORRIS: Thank you.

EXAMINER UTZ: Are there any other questions of the witness?

If not, the witness may be excused.

(Witness excused.)

EXAMINER UTZ: Are there any other statements in this

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