BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 2, 1957

IN THE MATTER OF:

CASE NO. 1274

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TRANSCRIPT OF PROCEEDINGS

NEW MEXICO OIL CONSERVATION COMMISSION

Mabry Hall

Santa Fe, NEW MEXICO

REGISTER

HEARING DATE Examiner Hearing July 2, 1957 TIME: 9:00 a.m.

| NAME: | REPRESENTING: | LOCATION: |
|---|---|---|
| William J. Cooley | NMOCC | Santa Fe |
| Warren Mankin | " | " " |
| J. A. Warren | So. Calif. Pete. Corp | Midland, Tex |
| Ed Reed | NMOCC | Santa Fe |
| Nancy Royal | N. M. Stateleone Reporting Service | Santa Fe |

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

July 2, 1957

IN THE MATTER OF:

The application of Southern California Petroleum Corporation for an exception from the shallow-zone casing requirements in the Potash-Oil Area as established by Order R-111-A. Applicant, in the above-styled cause, seeks an order authorizing the following casing program in lieu of the shallow-zone casing requirements established by Order R-111-A for its proposed well to be drilled at a point 1980 feet from the North and East lines of Section 13, Township 20 South, Range 33 East, in the Teas Pool, Lea County, New Mexico:

13 3/8-inch casing in the top of the Red Beds at about 60 feet.

8 5/8-inch or 10 3/4-inch casing at approximately 1,000 feet, but in any event below the water.

$5\frac{1}{2}$-inch casing at approximately 3,200 feet in the top of the Yates formation.

In the event production is encountered, applicant proposes to pull all casing except the production string and to cement the production casing to the surface.

CASE NO. 1274

BEFORE:

DANIEL S. NUTTER, Examiner

TRANSCRIPT OF HEARING

EXAMINER NUTTER: The hearing will be called to order please. First case on the docket this morning will be Case No. 1274.

COOLEY: Case No. 1274, the application of Southern California Petroleum Corporation for an exception from the shallow-zone casing requirements of the Potash-Oil Area as established by Order R-111-A.

WARREN: I have a prepared statement.

NUTTER: Will you sit down here, Mr. Warren.

MR. J. A. WARREN, HAVING BEEN FIRST DULY SWORN IN, TESTIFIED AS FOLLOWS:

COOLEY: Will you state your name and position please.

WARREN: James A. Warren, Division Engineer for Southern California Petroleum Corporation in Midland, Texas.

COOLEY: Have you previously testified before this Commission, Mr. Warren?

WARREN: I have on several occasions.

COOLEY: Were your qualifications accepted as an expert witness?

WARREN: Yes they were.

COOLEY: Does the Examiner accept the qualifications of the witness?

NUTTER: Yes sir, will you proceed, Mr. Warren.

WARREN: Southern California Petroleum Corporation filed an application on May 20, 1957, for an Examiner Hearing regarding exception to the shallow-zone casing requirements in the Potash-Oil Area as established by Order R-111-A dated October 13, 1955. Copies of this application were mailed to the Potash Company of America, Carlsbad, New Mexico, and the U. S. G. S. Offices in Carlsbad and Artesia. Southern California Petroleum Corporation is the operator of six of the fourteen wells in the Teas Pool and now proposes to drill a new well

in the SW/4 of the NE/4 of Section 13, Township 20 South, Range 33 East. That's 1980 feet from the North and East lines of said Section 13. This location falls in center of Unit "G" being a part of government lease Las Cruces No. 065447. This lease is within the horizontal limits of the Teas Pool and the Potash-Oil Area as defined by Order R-111-A. A plat of the Teas Pool area was submitted with the above-mentioned application during location of our proposed well and we wish to submit a copy of this plat as Exhibit "A". In the interest of economy we plan to drill this well with cable tolls in order to set protective casing strings above the Salada formation without cementing them and thus drill into the Yates oil zone and determine whether or not we have a productive well before cementing the salt protection or oil strings. This procedure has been followed in drilling our other wells in the Teas Pool. Specifically we propose to run the following casing strings: surface casing: 13-3/8 at about 60 feet to shut off possible fresh water in surface sands. Water shut off casing: 10 3/4" at about 1,000 feet to shut off caving section and Santa Rosa water. If it should be necessary to set the 10 3/4" casing at 600 to 700 feet to prevent caving, then 8 5/8 casing will be carried to about a thousand feet and set below the water. Production string: the Salada formation will be drilled dry and hole reduced at the top of the Yates sands at about 3200

feet. The Yates sands will then be penetrated to determine if commercial oil and gas is present. If completion is to be attempted, 5 1/2" casing will be run to the top of the Yates, the upper casing strings will be pulled and 5 1/2" casing cemented to the surface in accordance with Order R-111-A. We feel that this casing program will adequately protect the salt section and possible potash deposits if well conditions are as they are expected to exist. If any unexpected conditions should occur we will immediately take whatever action is necessary to prevent contamination of potash deposits which may be present. In the event that completion is not attempted, the hole will be plugged with cement throughout the salt section, the upper strings of casing pulled, and all water zones cemented in accordance with Order R-111-A. If this program be satisfactory we respectfully request that the U. S. Geological Survey be so notified in order that they may consider our Notice of Intention to Drill for approval. Respectfully submitted this 2nd day of July, 1957, Southern California Petroleum Corporation.

NUTTER: Do you have anything further, Mr. Warren?

WARREN: No, that is the proposal that we wanted to make, but I do want to have some discussions if there is any feeling that there might be some objection to this

drilling into the Yates without setting the 5 1/2, because we don't want to have our application turned down because of the way it is presented in this prepared statement. We want to drill the well but we want to satisfy whatever requirements are necessary.

NUTTER: Does anyone have any questions of the witness. Mr. Mankin-

MANKIN: Mr. Warren I notice from your casing program that you anticipate water down only to about 1,000 feet. Has your experience been in this particular pool in the prior drilling that you obtained no water below a 1,000 feet; there is nothing to, say 1300 - 1400 feet, no water?

WARREN: Yes, sir, that's in the four wells that I have been familiar with in that field and that we have drilled, I don't believe we had any water below about 900 - 850 to 900.

MANKIN: So you feel that that would be adequate protection down to what you found in the past around a 1,000 feet?

WARREN: Yes, in other words, we of course would be watching for the water and would go far enough to where the hole dried up, before we hoped that it would be below any water that is present before we start the 5 5/8.

MANKIN: In an area slightly to the East of this where the anticipated water down to 1300 feet if you found that condition of course you would further land the 10 3/4 or 8 5/8 casing on through all water zones to protect

the salt and water - and salt and potash deposits.

WARREN: Yes, that's right, if the unexpected should occur that some water would come in at 1200 feet of course that would expose the salt section to that water and we would lower the pipe.

MANKIN: How did you anticipate setting each of these strings of casing such as 13 3/8, 10 3/4 or 8 5/8, do you anticipate a casing seat, or mudded up or packed or what?

WARREN: No, of course we plan to set them on a shoulder and mud them in with heavy mud in the usual cable tool fashion.

MANKIN: Mudding them in rather than anything, tacking them in.

WARREN: Yes because it is our hope to be able to pull all the upper strings of pipe, of course as each one is set we will bail the hole dry for an adequate water shut-off test.

MANKIN: I notice in these wells in the Teas Pool have varied in practice, some have left the intermediate string, - intermediate and surface string in by mudding up, others have tacked it and others have pulled it - your procedure of course is to attempt to mud it up and pull it later.....

WARREN: Yes that's right at least in each of our two Bob wells and two Forth wells all the upper strings of pipe were pulled.

MANKIN: And your application of course indicated that the Salada formation will be drilled dry if the offset

Potash company producers would make such a suggestion you would be possibly agreeable to drilling with some solution and using brine solution if that was necessary?

WARREN: Yes sir, if it was necessary to carry any fluid in the hole, if the contractor felt it necessary to carry any fluid, we would be willing to have a saturated brine solution.

MANKIN: Mr. Warren, this particular well location is within the presently defined horizontal limits - horizontal and vertical limits of the Teas Pool, is that correct?

WARREN: That's right.

MANKIN: Which is the Yates formation -

WARREN: Yes sir.

MANKIN: It is also within the defined limits of the Oil-Potash Area as defined in Order R-111-A - is that correct?

WARREN: Yes.

MANKIN: Your application indicated if you got production, that you would set casing on top of the Yates. What has been the experience of Southern California as far as setting the casing prior to the actual drilling into the formation, would you anticipate - could you tell whether you could drill into the - - set the casing first, production casing and then drill in or would you feel that it would be too much of a gamble to do it that way.....you would have to actually find if you had the production there before you set the casing.

WARREN: No, we have just done it that way in the past because that program has been approved of having our water string.....lower string of pipe set up at around 1,000 feet, I believe, is the lowest that any of those were set at and then drilling the rest of the hole without pipe and reducing the hole diameter at or near the top of the Yates and proceeding to drill into the productive interval and then by a few hours bailing and checking hole fill-ups we decide whether we have a well or not then immediately run pipe and run in the oil string, and cement.

MANKIN: So you would not. . . . .would it be your best plan not to set the casing until after you determine whether you have commercial production and then at that time set it at the top of the Yates.

WARREN: Yes because that's what we have done before and it has been successful. The only problem about running your string of 5 1/2 is of course that you have the expense of getting it up there and running it and possibly a small cement job on it; if that can be avoided, its less expensive. Of course if that would be the point that would prevent us from getting approval to drill this well this way why we will run the pipe before drilling the Yates if that becomes necessary.

MANKIN: Of course there would be an additional cost of actually running the casing even though it wouldn"t be cemented if you did not find production if that method was followed of setting prior to drilling the formation.

WARREN: Yes, in fact the last well we drilled in that field... or what we thought was in the field was the Forth No. 1-3 which turned out to be a dry hole, and it was such a sure shot that we went ahead and ran the casing as soon as we got an oil show in the Yates, we did pack it however, and we had to pull it then.

MANKIN: You were able to recover it?

WARREN: Yes, not all of it.

NUTTER: Mr. Warren you stated that in previous operations you have frequently run your 5 1/2" pipe without tacking it.....or I beg your pardon...you run your 5 1/2" pipe after obtaining production. You would drill into the Yates, obtain production and then run 5 1/2" pipe.

WARREN: Yes, obtain an indication of production.

NUTTER: At least you have tested the Yates prior to running the pipe?

WARREN: Yes, that's simply by....whatever the hole will.... by how much oil will come into the hole by natural fill-up which by the way I don't think that any of them have been more than 3 to 4 hundred feet of natural fill-up.

NUTTER: Well now Sir, in those cases where you waited until you had tested the Yates prior to running the pipe, had you set pipe.....these upper strings of pipe already.

WARREN: Yes.

NUTTER: Had you cemented those strings of pipe?

WARREN: No, they had been mudded in and bail tested for a water shut-off so that we knew the hole was dry below a thousand or 1200 feet before we started drilling the salt section.

NUTTER: Even your surface pipe was merely landed?

WARREN: Yes.

NUTTER: When did you cement your surface pipe then?

WARREN: We didn't, after the 5 1/2 oil string was landed on the bottom and then probably put the first stage of cement into the shoe then we would pull the 8 5/8 from approximately a 1,000, the 10 3/4 from 600, 13 3/8 from 60, pull it out of the hole then do a second stage cement job through a stage collar at approximately 1300-1400 feet, that's the way all four of our producing wells .....as far as the wells we've drilled are completed.

NUTTER: Was that in exception to Order R-111-A or was that prior to the effective date of the order?

WARREN: Yes, all of those were drilled prior to Order R-111-A.

NUTTER: Before the Potash-Oil Area rules were established then?

WARREN: Yes.

NUTTER: In the event that the Commission finds that it would be necessary to run 5 1/2 inch pipe and tack it in the hole prior to drilling into the Yates formation - that

would be satisfactory with Southern California?

WARREN: Yes it would. I would like to ask that if you do want to make that stipulation wouldn't it be satisfactory to use the Texas pattern shoe, and set that on the shoulder and mud it in the same manner as the upper string?

NUTTER: Could you cement through the shoe?

WARREN: Yes - after we determine to complete the well why it simply could be picked up and of course since we plan to cement the oil-string all the way from bottom to top anyway, it will be no problem at all, the cement job could still be performed.

NUTTER: I think you anticipate the top of the Yates at approximately 3200 feet.

WARREN: Yes sir.

NUTTER: Can that be cemented in one stage with this Texas pattern shoe?

WARREN: Yes, I believe so.

NUTTER: All the way to the surface?

WARREN: Yes sir.

NUTTER: Now, as regards the drilling of the salt section, do you anticipate drilling through the salt section with a dry hole or with brine in the hole?

WARREN: I had assumed that it would be drilled dry, but due to the discussion I have heard it may be necessary to put

a small amount of fluid in, but if the contractor does feel that it is necessary to have a small amount of fluid in the hole, we would be willing to - we would be glad to do that...have a saturated brine solution before it was put in the hole.

NUTTER: In other words, if you use a solution to drill through the salt, it will be a saturated solution?

WARREN: Yes sir.

NUTTER: Does anyone have any further questions of the witness? (Off the record discussion, Nutter and Cooley) Mr. Warren, it appears after discussion, that there is a possibility that the Potash Company of America is of the understanding that a saturated solution will be used in drilling through the salt. The Commission can determine that, whether the Potash Company feels that a saturated solution is necessary. Now in the event that the Potash Company feels that a saturated solution is necessary to drill through the salt and the Commission establishes that as a fact, would you be agreeable to drilling with a saturated solution?

WARREN: Yes, certainly. I presume it would be a reasonable amount, that they wouldn't want the contractor to carry a half a hole full of water to drill that.....I.....in normal cable tool drilling, you know, they do carry on a low fluid level.

NUTTER: Yes, sir, a reasonable amount of fluid will be used, if that is the understanding that the Potash Company?

WARREN: Certainly.

NUTTER: Incidentally I have a telegram that I would like to read into the record. It is addressed to the Oil Conservation Commission, State Capitol, Santa Fe, New Mexico, dated July 1, 1957: "Re: Case 1274. Potash Company of America has no objection to the exception from R-111-A as outlined. Signed D. E. Protz." In the event that it is established that the Potash Company of America's waiver to any objection to this program is on the understanding that a saturaged solution will be used to drill through the salt, that is agreeable with Southern California?

WARREN: Yes sir.

NUTTER: Ok.

NUTTER: Mr. Mankin.

MANKIN: Mr. Warren, how much salt section do you normally find in this area, or in other words the extent of the Salada, at what top and what bottom do you find it in this area?

WARREN: I believe, to the best of my recollection it is approximately 1300 feet down to 2300 or 2400 the top of the anhydrite is about 2300 or 2400.

MANKIN: So you would some 1,000 or 1100 feet of Salada section in this particular area?

WARREN: Yes.

MANKIN: Which under your plan you feel would give adequate protection to the salt section which likewise contains potash deposits?

WARREN: Yes, providing of course it should be protected because if we have all the water shut-off above it then the only fluid that is necessary to come in contact with the Salada formation would be the drilling fluid or if it could be dry there will be no fluid and likewise if we were allowed to drill into the Yates zone before setting any oil string the expected fluid levels, the fluid levels we have encountered in the past have not been high enough to come within four or five hundred feet of getting up into the salt so we propose that as our first choice as being the least expensive way to drill the well, and still feeling that we could protect the salt and potash interval. We would have 5 1/2 inch casing on the location so that in case something unforeseen occurred, it could be run in quickly.

MANKIN: I have one further question, Mr. Warren. The primary reason for this request for an exception to Order R-111-A is that you feel that the program that you have outlined will protect the Potash deposits equally as well in this particular area alone than would the true adherence to Order R-111-A, is that correct?

WARREN: Yes, I think they would be protected as well and....

MANKIN: Of course there would be considerable savings to Southern California Petroleum Company to - in having this program which you have proposed as compared to the more expensive program that might be required under Order R-111-A, is that correct?

WARREN: Yes.

MANKIN: That's all.

NUTTER: Does anyone else have any question of the witness? Mr. Cooley.

COOLEY: Mr. Warren, if it develops in drilling this well that the proposed casing program is not adequate will any corrective measures be taken that are necessary?

WARREN: Yes sir, as stated in my testimony that we would take immediate steps to remedy whatever unforeseen developments should come up. And I say again, we could - if we were - if this application were approved as stated we would further have our 5 1/2" casing on the location so that it could be run immediately in case there were unforeseen developments, which would mean fluid coming in from above or fluid from below.

COOLEY: If the well proves productive there would be no difference in cost, in whether you set the 5 1/2 before or after you drill the Yates, is that correct?

WARREN: No, that's right.

COOLEY: And if it's not productive then you would have lost the time necessary to put the casing in the hole and transporting it out there to the site and everything.

WARREN: Yes.

COOLEY: Would you care to estimate what that cost would be if it proved non-productive?

WARREN: Do you mean.....

COOLEY: The differential between setting.....assume the well proves non-productive, and what would the additional cost be if you were required to place the 5 1/2" casing in the hole prior to drilling the Yates.

WARREN: In the hole and cemented or mudding it?

COOLEY: Mudding it.

WARREN: Oh, just off hand I'd say about a $1,000, I don't believe it would be any more than that.

COOLEY: And what is the total estimated cost of drilling the well?

WARREN: $32,000, drilling and completing.

COOLEY: I believe that's all. Thank you.

NUTTER: Any one else have any question, if not the witness may be excused. Does anyone have anything they wish to offer in this case, if not we take the case under advisement, and the hearing is adjourned.

STATE OF NEW MEXICO )
)ss.
COUNTY OF SANTA FE )

I, Ida Rodriguez, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission Examiner at Santa Fe, New Mexico, is a true and correct record, to the best of my knowledge, skill and ability.

DATED at Santa Fe, New Mexico this 12th day of July, 1957.

Ida Rodriguez

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1274, heard by me on 7-2, 1957.

, Examiner
New Mexico Oil Conservation Commission