BEFORE THE
OIL CONSERVATION COMMISSION
NOVEMBER 19, 1958

IN THE MATTER OF:

APPLICATION OF CHACO OIL COMPANY, CASE 1556

TRANSCRIPT OF HEARING

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BEFORE THE
OIL CONSERVATION COMMISSION
NOVEMBER 19, 1958

IN THE MATTER OF: Application of Chaco Oil Company for an exception to Rule 104 of the Commission Rules and Regulations. Applicant, in the above-styled cause, seeks an order authorizing it to drill four additional oil wells in the Red Mountain-Mesaverde Oil Pool in the SW/4 SE/4 of Section 20 and the NW/4 NE/4 of Section 29, Township 20, Range 9 West, McKinley County, New Mexico.	Case 1556

BEFORE:
Elvis Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Next case on the Docket is 1556.

MR. PAYNE: Application of Chaco Oil Company for an exception to Rule 104 of the Commission Rules and Regulations.

MR. BIRDSEYE: My name is Henry S. Birdseye. I am a consulting geologist and a co-partner in Chaco Oil Company, the Applicant, and authorized representative of Chaco Oil Company at this hearing. (WITNESS SWORN.)

DIRECT EXAMINATION

MR. PAYNE: State your name and position for the record.

A My name is Henry S. Birdseye. I'm a co-partner in Chaco Oil Company and the authorized representative of Chaco Oil Company in this case.

MR. PAYNE: have you previously testified before this Commission as an expert, Mr. Birdseye?

A Yes, I have.

MR. PAYNE: Are the witness' qualifications accepted?

MR. UTZ: Yes, they are.

MR. PAYNE: Please proceed.

A The Red Mountain Oil Field was discovered in 1934, which, I believe, was prior to the establishment of the Commission. Virtually all of the early development was done in absence of regulations, so that there is no pattern of producing wells which conforms to present day regulations. There is also a virtually complete absence of technical data regarding the field both geological and engineering.

These reports may summarize some of the things which I'm about to tell.

MR. UTZ: Is this an exhibit?

A Well, I've not labeled it as an exhibit; however, we can call it Exhibit E, and it will be submitted as Exhibit E for the Commission.

I refer you to Exhibit A, which is a regional map, the only purpose of which is to show the location of the Red Mountain Field with respect to Hospah and Seven Lakes Field and show the original structure, which here consists of two converging faults between which there is a nosing or a small anticline enclosure on which the production in the Red Mountain Field occurs.

Exhibit B shows proration units O in Section 20 and B in Township 20 North, Range 9 West. All of the present production

is within those two proration units, and this application is concerned with the request to drill additional wells within the two producing units with no increase in the allowable.

The wells which are now producing, and have been since Chaco Oil Company acquired this lease in November of 1957, are Wells Number 1, 2, 3 and 4, with a total daily productive capacity at the present time of about 9 barrels.

These wells were all drilled many years ago, and we have some information, certainly not enough to draw an isopach map or recommend any remedial treatment.

Applicant's Exhibit C is a structural contour map drawn on the producing sand referred to here as the 450-foot sand. This map was drawn in 1945 by a geologist, Vernon King. It shows only Sections 20 and 29 in their entirety, but the two adjoining sections to the east -- I might interject here in the south half of Section 20 and the north half of Section 29 are covered by one Santa Fe Railway Company lease -- Sections Number 9, 4, 26, which was assigned in 1955 to Ben and Celia Sapir, which was subsequently assigned to the Chaco Oil Company, a partnership of four individuals.

Applicant's Exhibit D is a rather detailed structural map of a producing area and its vicinity, based primarily on stratographic testing program undertaken by Chaco Oil Company in the spring of 1958, correlated by electrical and gamma ray logs; and it porbably is the most reliable structural information which is

available. In fact, it is almost the only reliable technical information available on the field.

Units O and B are encircled by the orange line. The inner irregular dashed line outlined in green is what I consider to be the apparent depleted portion of the reservoir, which you can see lies northwest and in a down dip from the crest of the structure. And there is a fault which transverses the reservoir in the middle of the east-west fault some 40 or 50 feet through. There is production on both sides of the fault.

Shown on Exhibit D within units O and B are proposed well locations which are colored in red. As you can see, these all lie within presently producing 40-acre units, due to the irregularity of the spacing of the original, currently producing wells.

We are at somewhat of a disadvantage to follow any standard spacing, whether it be two and a half, five or ten acres within those units; so these proposed locations are rather arbitrarily chosen to drain portions of the reservoir, which, as shown in the well data or Exhibit B, and I believe D, shows some of the now abandoned wells which we think by modern drilling and completion methods could be put on production.

We are applying not for an additional allowable over the unit allowable for units O and B, but simply for an unorthodox location on the wells shown. I have not indicated the footages. I have them here, and if you wish, I will give you the footages of these proposed wells shown in red on the map.

The field is currently producing from 6 to 9 barrels a day, depending more on mechanical difficulties which have arisen with the pumping equipment than anything else.

The well shown as number two on the north side of the fault in Section 20, Unit O, is capable of producing about 5 barrels a day of oil with no water. The remaining wells, 1, 3 and 4, are productive of slightly more than a barrel a day, with considerable quantities of water, which I think is attributable to the original completion.

There is no measurable gas produced with the oil. Apparently it is not a solution gas drive to any extent at all that is measurable. The only drive mechanism which we can extrapolate from the productive history of the field around these wells is due to a low pressure water drive which seems to be doing a pretty fair job of flushing the immediate vicinity of the well bore, but probably it doesn't cause a migration from any considerable radius; and that is, in my opinion, a justification for proposing these additional wells on such close spacing outside of apparently depleted portions of the reservoir.

Now, this apparently depleted portion of the reservoir was sketched by me on the basis of production from the wells which appear within the green line, based on the volume of production which accummulatively through October, 1958, amounts to 25,290 barrels.

Previous engineering data, such as it is, and it is extremely

sketchy, indicates that the data supplied by Vernon King in 1945 states that the net pay thickness of this pool in the Menefee formation of the Mesaverde group has an average of 8 feet pay thickness.

In trying to determine what area of the reservoir would have to be voided in the production of 25,290 barrels, I have taken an assumed pay thickness of 8 feet average pay porosity of 20 percent average connate water saturation of 50 percent original reservoir pressure 195 pounds per square inch, et cetera, as shown on page A-2 of Exhibit E of the bound report.

Assuming that these reservoir factors are correct, the average recoverable oil per acre foot would originally have been 180 barrels, the average recoverable oil per acre, or 1440.7 barrels. I have estimated a recovery factor of 25 barrels. By simple arithmatic, it would indicate to produce 25,290 barrels of oil.

Given these reservoir conditions, approximately 17.55 acres would have been voided, and this is the approximate area within the green line.

The bases for our application are in keeping with the objectives of the Oil Conservation Commission. First, the prevention of waste, and, too, waste certainly would be prevented by the completion of additional wells, which would permit the more efficient drainage of the remaining reserve. Second, there is no question of correlative rights here, as you can see. The two

40-acre producing units lie separated from the adjoining leases to the east by an additional non-productive 40-acre unit; and there seems to be very little likelihood that production will extend on those units to the east, which then would offset other lease holders. And, third, our final consideration in making this application is based on simple economics. Since Chaco Oil Company took over the ownership and operation of this property in November of 1957, approximately a year ago, our overhead and capital expenditure is $19,855.16. The total income of Chaco Oil Company from production on this lease has amounted to $5,189.39, leaving a deficit for one years operation of $14,666.77. It is obvious that we can't operate at this rate of profit for very many years.

We believe on the basis of inherited old well information that the locations which are shown as proposed and colored in red on Exhibit D, all or some of them should be productive and should lie outside of the drained area at the present time. It may be that after drilling one or two of these wells we will have sufficient success in completing new wells we will want to step out further. At the present time, it would appear to be quite a gamble to move out on any regular spacing of five acres or even two and a half acres. We are certainly hindered in any such plan by the spacing of the original wells which were drilled prior to the establishment of the Oil Commission.

That is, gentlemen, the gist of the direct testimony. I would

be happy to entertain questions and try to answer them as best I can.

MR. UTZ: Who owns the leases in Units A and B to the east of this area?

A They are part of the Santa Fe Lease to Chaco Oil Company. The entire area shown on the map, the south half-north half of 20 and 29 are covered by one lease from the Santa Fe Railroad to Chaco.

Q You are applying for non-standard locations?

A That is correct, within Units O and B, present producing units.

Q You have those footages on those locations?

A Yes, I have. I should have noted them on the map. I neglected to do so. Maybe you can read my scribbling here.

MR. UTZ: Any other questions of the witness? If there are no questions of the witness, you may be excused.

(Witness excused.)

MR. UTZ: Any other statement to be made in this case? If there is none, the case will be taken under advisement, and the hearing is adjourned.

(Whereupon the hearing adjourned at 7:10 p.m.)

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

WITNESS my Hand and Seal this 25th day of November, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

John Calvin Bevell
NOTARY PUBLIC

My Commission Expires:

January 24, 1962

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1556, heard by me on Nov. 19, 1958.

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