

EXAMINER HEARING
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 8, 1958

IN THE MATTER OF: Case No. 1363

TRANSCRIPT OF PROCEEDINGS

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EXAMINER HEARING
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 IN THE MATTER OF:)
)
 Application of J. C. Watson Drilling Company)
 for an order authorizing the use of vacuum pumps)
 on certain wells in the Roberts Pool in Lea)
 County, New Mexico. Applicant, in the above-)
 styled cause, seeks an order authorizing the use) Case 1363
 of vacuum pumps on its Trimble No. 1 Well)
 located in the NE/4 NE/4 Section 11, Township)
 17 South, Range 32 East, and its Trimble No. 2)
 Well located in the SE/4 NE/4 of said Section)
 11, in the Roberts Pool, Lea County, New Mexico.)
 -----)

BEFORE: Mr. Daniel S. Nutter, Examiner.

TRANSCRIPT OF PROCEEDINGS

MR. NUTTER: The meeting convened in the offices of the Oil Commission at 9:00 o'clock, and we hereby recessed the meeting until 9:15 in Room 204, State Capital Building.

(Recess.)

MR. NUTTER: The hearing will come to order, please. The first case on the docket will be Case No. 1363.

MR. COOLEY: Case 1363: Application of J. C. Watson Drilling Company for an order authorizing the use of vacuum pumps on certain wells in the Roberts Pool in Lea County, New Mexico.

(Witness sworn.)

EDWARD E. KINNEY

a witness, of lawful age, having been first duly sworn on oath,
testified as follows:

DIRECT EXAMINATION

MR. COOLEY: Would you state your name and position, please?

A Edward E. Kinney, a petroleum consultant, Artesia, New
Mexico.

MR. COOLEY: Are you appearing on behalf of J. C. Watson
Drilling Company?

A I am.

MR. COOLEY: Have you previously qualified as an engineering
witness before this Oil Conservation Commission of New Mexico?

A I have, and I ask that my qualifications will be accepted
in this case.

MR. NUTTER: Mr. Kinney is accepted as an expert witness.

MR. COOLEY: Mr. Kinney, are you familiar with the particular
conditions in the Roberts Pool of Lea County, New Mexico?

A Yes, sir, I am familiar with the conditions in the Roberts
Pool.

MR. COOLEY: Proceed.

A May I submit this map as Exhibit 1?

(Applicant's Exhibit No. 1
marked for identification.)

I submitted this map of the western part of the Roberts
Pool. It's labelled Roberts Pool and was the original part until

development in the last year, year and a half. It covers Sections 1, 2, 3, 10, 11, and 12 of Township 17 South, Range 32 East.

My clients' wells are J. C. Watson Company Trimble Wells No. 1 and 2 in the east half of the northeast quarter of Section 11 of Township 17 South, Range 32 East. These wells were drilled in 1946. Casing was cemented in the Grayburg formation at 4,027 feet in No. 1 well, and 4,062 feet in No. 2 well. The No. 1 well was fractured in 1954. The No. 2 well was fractured in 1956.

The pay zones are the Basil, Grayburg and Upper San Andres formations. I would like to submit another exhibit here.

(Applicant's Exhibit No. 2
marked for identification.)

This Exhibit No. 2 in Case 1363 is the production record of the Watson Drilling Company Trimble lease Wells No. 1 and 2 on an annual and cumulative basis from the year 1946 through October, 1957. The No. 1 well to the end of October, 1957, has produced 66,209 barrels. The No. 2 well has produced 35,208 barrels. In both wells the decline was quite rapid between 1947 and '48; in the case of the No. 1 well it dropped fifty percent, and in the case of the No. 2 well it dropped about seventy percent, a little over.

The 1957 average production in these two wells is six and one-quarter barrels per day in the No. 1 well, and 1.3 barrels in the No. 2 well. The gas production is too small to measure.

Both wells are on the pump. Referring back to Exhibit 1, the wells in the southeast and southwest corners of Section 1 and

the like wells in Section 2 have already been plugged and abandoned in this Pool. The area shown in this map, as I said earlier, represents the early part of the Roberts Pool. Recent development in Township 17 South, Range 33 East in Sections 7, 8, and 17 has been included by the Oil Commission in the limits of the Roberts Pool. In my opinion this is apparently a separate reservoir from the western portion in Township 17 South, Range 32 East. The abandoned wells in Section 1, a solitary well in Section 12, together with the undeveloped acreage to the east in Section 12, plus some wells that we do not see, being over in Township 17 South, 33 East, a weak well in Unit C in Section 7, and a plugged and abandoned well in Unit G of Section 7 would seem to define a very definite separation between this western portion and the eastern portion of the Roberts Pool. In the western part of the Roberts Pool, the producing wells are owned by Leonard Nichols, Suppes and Kennedy, The Texas Company, and the Watson Drilling Company. Leonard Nichols owns the shallow producing rights under the Phillips and Ohio leases.

At the time of the application for this hearing, copies of the application were sent by registered mail to all producers in the Roberts Pool. My client, the Watson Drilling Company, desires to install a vacuum pump upon the Trimble 1 and 2 Wells for the purpose of increasing the oil recovery.

I would like to submit Exhibit No. 3.

(Applicant's Exhibit No. 3
marked for identification.)

Exhibit No. 3 in Case 1363 is a picture of the proposed vacuum unit that the Watson Drilling Company proposes to use on these wells. It consists of a large cylinder, 18 inches by 12 inches, with a stroke, maximum stroke of 15 inches, allowing a displacement of 100,000 cubic feet of gas per day, or two cubic feet per stroke. The unit displaces on both the pull and thrust of the piston, thereby maintaining a steady vacuum. It attaches to the walking beam of the pumping unit that is used to pump the well through the tubing. It is claimed by the manufacturers that this pump will hold from 16 inches to 24 inches of vacuum, dependent on the amount of gas that the well makes. This vacuum is applied to the top of the casing.

I do not offhand expect the pump to pull any more than 11 pounds, and the range will probably be from 6 to 11 pounds of vacuum upon the casing. This vacuum should reduce the weight effect of the gas column and slightly reduce the bottomhole pressure. The effect should permit the slight remaining reservoir pressure to push a little more oil into the well bore. This small pressure reduction in low permeability reservoirs will not in my opinion adversely affect the offset wells one quarter mile away.

A vacuum project which will enable pressure depleted reservoirs to produce a little more oil will promote conservation by securing this extra oil for use, rather than having it remain locked in the ground. This lease, these wells and the surrounding wells are too small to justify a pressure maintenance or at this time

the thought of a water flood project for the recovery of the remaining oil.

My client and some of the other operators desire to see whether or not a vacuum pump installed upon the casing will materially aid in recovering some addition oil from this reservoir.

I would like to submit photo-copies of letters from offset operators regarding this case. The first one is from The Texas Company, dated October 10th, 1957. It says: "Your letter dated September 20, 1957 concerning the upcoming request of your client, Watson Drilling Company, for a permit to use vacuum on its wells in the E/2 NE/4 of Section 11 - T-17S - R-32E, Roberts Pool, New Mexico, has been transmitted to this office for handling. The Texas Company has no objection to the initiation of this project and will make no opposition to your application before the New Mexico Oil Conservation Commission."

A letter from the Phillips Petroleum Company, I'm only going to read part of it. "The two wells located on your clients' lease described as the E/2 NE/4 of Section 11, Township 17S, Range 32E, Lea County, New Mexico, are apparently producing from the Grayburg formation at a depth of less than 5,000 feet. It is our understanding that your client proposes the use of vacuum on his wells and will file an application with the New Mexico Commission in order to request approval of this method of operation. Phillips Petroleum Company has undeveloped acreage offsetting the above lease, however, we do not operate any wells in the Roberts Field

and for this reason we do not wish to actively support or oppose such an application before the New Mexico Commission."

Letter from Leonard Nichols, Dallas, Texas. "In answer to your letter of October 14th concerning two old wells located in E/2 NE/4 Sec. 11-17S-32E, Roberts Pool, Lea County, New Mexico, belonging to a client of yours, this is to advise that I have no objections to this vacuum project you speak of. My offset wells to these wells are also very small producers. Therefore, any project that would help increase production in this pool will be welcomed."

And a letter from Suppes and Kennedy. "We have your registered letter to the Oil Conservation Commission for permission to place the Trimble Wells 1 and 2, Section 11, Township 17 South, Range 32 East, on Vacuum Pump. This is to advise you that we do not have any objection to this project, in fact, we are very anxious to see this project started."

As these letters have shown, The Texas Company offers no opposition to the application; the Phillips Petroleum Company, a base lease owner, neither supports nor opposes the requests. The two operators of producing wells, Leonard Nichols and Suppes and Kennedy, both support the request and are definitely interested in the final results.

A vacuum installation may offer a means of recovering additional oil from pressure depleted reservoirs which are too small to justify a pressure maintenance or water flood project.

Rule 307 of New Mexico Oil Conservation Commission Rules and Regulations states: "Vacuum pumps or other devices shall not be used for the purpose of creating a partial vacuum in any stratum containing oil or gas."

On behalf of my client, Watson Drilling Company, I hereby request an exception to Rule 307 and ask the Oil Conservation Commission to permit the installation of vacuum pumps on the marginal or stripper lease.

With the permission of the Examiner, I request that these exhibits be accepted in this case.

MR. NUTTER: The letter from the Texas Company has been identified as Applicant's Exhibit No. 4; the letter from Phillips, Applicant's Exhibit No. 5; the letter from Leonard Nichols, Applicant's Exhibit No. 6; and the letter from Suppes and Kennedy, Applicant's Exhibit No. 7.

(Applicant's Exhibits Nos. 4, 5, 6,
& 7 marked for identification.)

Is there objection to the introduction of Applicant's Exhibits 1 through 7 in Case 1363? If there is no objection to the admission of these exhibits, they will be admitted as evidence. Do you have anything further, Mr. Kinney?

Does anyone have any questions of Mr. Kinney?

CROSS EXAMINATION

By MR. PORTER:

Q Has your client had experience with vacuum pumps in any other states?

A To the best of my knowledge, Mr. Porter, the Watson Drilling Company has not had experience in the use of vacuum pumps, although he has made some study of their operation in other cases near Wichita Falls.

MR. NUTTER: Any further questions? Mr. Cooley.

By MR. COOLEY:

Q Mr. Kinney, I was trying to follow you there and mark on the plat the offset operators. Who owns the remainder of the west half of Section 11 in which you have your two wells in the southeast quarter of Section 11?

A Well, Ohio has the base lease on the west half of Section 11, the southeast quarter and the west half of the northeast quarter is all Ohio. It's two fee leases, the Taylor on the west half of Section 11 and Trimble on the east half of Section 11. Nichols has the shallow producing rights.

Q So Nichols owns the entire remainder of Section 11 as far as --

A (Interrupting) Yes, sir.

Q -- as far as the affected horizon?

A Yes, as far as the affected horizon. Nichols owns all of Section 11, Section 10, south half of Section 3 and Section 2, all producing rights except for that one forty-A belongs to Suppes.

Q You say they own the shallow rights in Section 10 and the shallow rights in the Ohio well and the westernmost portion --

A (Interrupting) That I don't know.

Q You have no letter from Ohio?

A No.

Q Did you receive a return receipt from Ohio, or did you send them a notice of this case?

A Just a second, I can tell you who did get them. No, Ohio did not get a copy of this. Would you care for me to read into the record the companies notified?

Q Yes.

A The people notified were Boler and Nichols, Leonard Nichols, Brinson and Woodhall, W. E. Pitman, Shell Oil Company, Suppes and Kennedy, and The Texas Company. The people notified were taken from the list of operators in the proration schedule.

Q All the people who operated wells in the pool were notified?

A Yes, sir. Even those operating over in the east part of the pool.

Q You made some mention of water flood in this area. Is it your opinion that -- I believe you stated that this pool is not a proper subject for a water flood operation?

A From the small, thin pays that we have here and the low permeability it would not seem that it was a very good candidate for water flood.

Q Assume for the moment that water flood were instituted in the future in this pool, would the use of vacuum pools on the Watson lease have any adverse effect on the success of such a project?

A I can't say that it would have any adverse effect. The

vacuum pump that is to be installed is to pull a vacuum on the casing at the top and would only reduce the pressure slightly at the bottomhole. I cannot see it would have any adverse effect on the water flood.

Q Do you have knowledge in some areas in Oklahoma that there is a feeling that the use of vacuum pumps in the early development of that area had some adverse effect on water floods in that area?

A I know that opinion is held by some people in and around Bartlesville where they had vacuum pumps. They used all types of operations up there in the old days, but I am not familiar with the exact nature of their vacuum pumps, whether they were on a tubing with a packer in which they might have had some air contamination going down the casing, or whether they were at the top of the casing with all air and other extraneous gasses excluded, I am not familiar.

Q It is your testimony that it would not have any adverse effect?

A I do not think it would. The casing is set low in the Grayburg formation. There wouldn't be any opportunity for air to go back down the casing and mix with the formation, causing excessive corrosion or otherwise adversely affect the formation, and all we would be doing would be lowering the pressure, allowing what remaining reservoir pressure exists to push oil in the well bore.

MR. COOLEY: I believe that is all. Thank you.

MR. NUTTER: Mr. Utz.

By MR. UTZ:

Q Mr. Kinney, as I understand your application here, you are applying only for the use of this specific mechanical device, not a blanket approval for the use of any type of vacuum pumps?

A That is correct. My client proposes to use just this type installation and to try the unit to see if it will recover enough oil to be economical.

MR. UTZ: That's all.

MR. COOLEY: Thomas Vacuum Pump is the only designation for this?

A That's the only designation we have, Mr. Cooley. This is merely a sales flyer and shows the pump, called Thomas and manufactured in Russell, Kansas, by the S and H Manufacturing Company.

By MR. NUTTER:

Q Mr. Kinney.

A Yes, sir.

Q You stated that various of the operators own the shallow rights in certain of these sections in the Roberts Pool. Do the shallow rights that these operators own include the Grayburg formation?

A The operators, to the best of my knowledge, own the rights to 5,000 feet which includes all the Grayburg and into the San Andres.

Q So the entire productive formation of the Roberts Pool is included in the shallow rights that these operators own?

A Yes, sir.

Q You have notified all of the operators in the pool, whether they be in the west end that we are concerned with here or in the east end of the pool?

A Yes, sir.

Q You have received replies from three operators who own wells, and Phillips Petroleum Company who has no wells in the area. You received a reply from Leonard Nichols, who, according to the oil proration schedule operates 19 wells in the pool?

A Yes, sir.

Q We don't show a reply from Boler and Nichols. Is Leonard Nicholds the identical Nichols who is a partner in the partnership of Boler and Nichols?

A Yes, he is the managing partner.

Q Would you presume he is speaking for Boler and Nichols when he waived the objection to vacuum pumps?

A Yes, I do presume.

Q He operates 19 wells as Leonard Nichols and 10 wells as Boler and Nichols?

A That's correct.

Q You received a letter from Suppes and Kennedy?

A Yes, sir.

Q And one from The Texas Company?

A Yes, sir.

Q How about Brinson and Woodhall?

A No reply from Brinson and Woodhall. For the record here,

The Texas Company has a direct east offset to the No. 1 well. Leonard Nichols has all of the other direct offsets to the Trimble 1 and 2 wells. The Suppes well is one-half mile away, and the Brinson and Woodhall is about a mile and a half away from this project.

Q So no reply was received from Brinson and Woodhall, but their well is a mile and a half away from the subject wells?

A Yes, sir.

Q Did you receive a reply from W. E. Pitman?

A No, sir.

Q Where are his wells located?

A His wells are located over in Township 17, Range 32 East, in Sections 7 and 8.

Q How far away would that be, then?

A It would be nearly two miles.

Q Did you receive a reply from Shell Oil Company?

A No, sir, I did not receive one.

Q How far away are their wells?

A They are in the same area, Township 17 South, 33 East, about two miles. Shell Oil Company had a representative at the hearing yesterday. I do not know if they have any here today.

Q That takes care of everybody except J. C. Watson -- do they object? Mr. Kinney, what evidence is there that the two separate producing areas would not be the same reservoir?

A The only evidence that we have that they are two separate

reservoirs have been the spread between Sections 2 and 11 of Township 17 South, Range 32 East; the development in Section 7, in the east part of Section 7, Township 17 South, Range 33 East in which there has been only four wells drilled; one in the southwest quarter of Section 1, one in the southeast quarter of Section 1, one in the northwest quarter of Section 12, and one in the northeast quarter of the northwest quarter of Section 7. The two wells in Section 1 have long since been plugged and abandoned. The well in Section 12 is operated by The Texas Company and has not been offset further to the east. The well in the northeast of the northwest of Section 7 is a weak well. That intervening undeveloped acreage with this weak well on either side seems to me to indicate a barrier, a permeability barrier between the two reservoirs.

Q So you have an interval there of approximately a mile or a little more?

A A mile.

Q That has never been developed?

A Yes, sir.

Q Surrounded on both sides by either weak wells or plugged and abandoned wells?

A Yes, sir.

Q Mr. Kinney, is it not true that the use of vacuum pumps in some instances will cause a reduction of the reservoir pressure and a consequent increase in the amount of gas that's produced by wells?

A Yes, sir. It probably will increase the amount of gas that will be produced; however, the present production is so very small that it would take a major increase to be important. If that should occur, there are in the area two possibilities of sale of this gas. To the north in the Anderson Ranch Pool, the Valley Gas Corporation operates a gasoline plant and is in the market for additional gas. To the southwest is the Maljamar Repressuring Project, and I feel sure that they would be in the market for some additional gas.

Q What distance from this area in question are these two possible sources of a market for the gas?

A The Maljamar Repressuring Project is about four miles, three to four miles, southwest. The Anderson Ranch Plant of the Valley Gas Company is approximately six miles north.

Q Would an effort be made to sell the gas in the event that the gas-oil ratios increased and a considerable volume of gas was being produced?

A I am sure that the operators in the field would do all within their power to sell the gas and get the additional revenues therefrom.

Q Mr. Kinney, what is your opinion as to the consequences of the installation of vacuum pumps on the Watson Trimble lease? Do you feel that this is going to cause a reduction in reservoir pressure and migration of oil and necessitate the installation of vacuum pumps in offsetting wells?

A I do not think that the vacuum pumps installed on the Watson Trimble wells will sufficiently reduce the bottomhole pressure to permit migration of oil from offset leases. These Grayburg sands are low permeability in the range from 1 to approximately 40 millidarcies, with most of it being on the lower end of the scale. The slight reduction that a vacuum pump will make will not in my opinion be transmitted an eighth of a mile to the end of the Watson lease.

Q So you feel that any effect that the vacuum pumps will have on the reservoir will be in the immediate vicinity of the wells, and not beyond the lease lines?

A That is my opinion. However, should there be any effect past the lease border, the letters submitted here in evidence have shown that the offset operators are most desirous of finding that out, and are interested in installing the same equipment.

Q And you had waivers of objection from all the immediate offsets?

A Yes, sir.

MR. NUTTER: Thank you. Any further questions of Mr. Kinney? If not, he may be excused.

(Witness excused.)

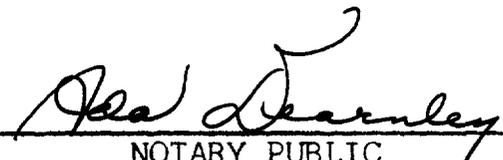
Does anyone have anything further they wish to offer in Case 1363? We will take the case under advisement and proceed to Case No. 1365.

C E R T I F I C A T E

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

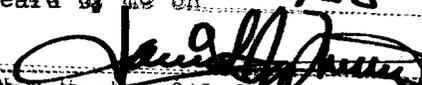
I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in stenotype and reduced to typewritten transcript under my personal supervision, 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 7th day of February, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.



NOTARY PUBLIC

My commission expires:
June 19, 1959.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1363 heard by me on 1-8, 19 58.

..... Examiner
New Mexico Oil Conservation Commission