BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

June 29, 1961

EXAMINER HEARING

Case 2326

TRANSCRIPT OF HEARING

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IN THE MATTER OF: Application of David Fasken for permission to drill directionally, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks permission to sidetrack and recomplete the David Fasken-King-Davis Well No. 2, located 1980 feet from the North line and 1980 feet from the West line of Section 27, Townthip 8 South, Range 37 East, Roosevelt County, New Mexico, in such a manner as to locate the bottom of the hole in the Bough "C" formation of the Bluitt-Pennsylvanian Pool 300 feet West of said surface location.	Case 2326

BEFORE:

Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The Hearing will come to order. The first case on the docket will be Case Number 2326.

MR. HINKLE: Clarence Hinkle, Roswell, representing David Fasken. We have one witness, Mr. Charles Joy.

(Witness sworn.)

MR. HINKLE: We have five Exhibits. We have distributed those to the Commission.

CHARLES C. JOY

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, please.

A Charles C. Joy.

Q By whom are you employed?

A David Fasken.

Q In what capacity?

A Petroleum Engineer.

Q Where do you reside?

A Midland, Texas.

Q Have you ever testified before the Oil Conservation Commission?

A No, sir.

Q Where did you graduate?

A University of Alabama.

Q With what degree?

A Petroleum Engineer.

Q In what year?

A '54.

Q Have you practiced your profession since your graduation?

A Yes, sir; the Atlantic Refining Company, six and a half years.

Q When did you leave Atlantic?

A In the Summer of 1960.

Q Where were you stationed with Atlantic?

A Midland, Texas.

Q What were the duties in your area?

A I was Area Reservoir Engineer when I left.

Q When did you go with David Fasken?

A In August of 1960.

Q Has your work covered our operations in New Mexico?

A Yes, sir. I handle all petroleum engineering problems pertaining to David Fasken's properties in New Mexico.

Q Are you familiar with the development in the Allison-Pennsylvania Pool?

A Yes, I am.

Q Are you familiar with the application which has been filed in this case by David Fasken for permission to drill directionally?

A Yes, I am.

Q Please refer to the Exhibit which has been identified as David Fasken's Number 1 and explain to the Commission what this is.

A This plat indicates Federal acreage leased by David Fasken and consists of the west half of Section 27. Also, it shows locations of wells Number 2, 3 and 4 drilled by David Fasken. In addition, the plat shows ownership of offset leases and the

relative location of the King-Davis Federal lease with respect to the Allison-Pennsylvania Pool.

Q Does it show also all of the offset owners?

A Yes, sir; except there is one in question.

Q Who are the offset owners there?

A Sam Boren, Texaco, Inc., Sun Ray Midcontinent Oil Company, Carl B. King, Roger H. Davis and the Ohio Oil Company.

Q Do you know whether or not copies of the application in this case have been sent to all of the offset owners?

A Waivers have been obtained and filed with the Oil Conservation Commission.

Q Did you send them copies of the application?

A Yes, sir.

Q You have obtained waivers from all of them?

A Yes, except the Ohio Oil Company. It is my understanding that Ohio will not oppose our application. The U.S.G.S. has approved the proposed workover and copies of the U.S.G.S. form 9331-A have been filed with the Oil Conservation Commission.

Q Now, I believe you stated that the west half of Section 27 in the David Fasken lease is Federal acreage, is that right?

A Yes, sir.

Q Are you familiar with the manner in which the King-Davis Number 2 was drilled?

A Yes, sir, I am.

Q That well is located in the northwest quarter, southwest

of the northwest quarter of Section 27?

A Yes, sir.

Q Can you give us a rundown on how the well was drilled, the depth?

A Yes, sir.

Q And the casing program and so forth?

A The well was originally drilled to a depth of 9500 feet February 6, 1961. A full string of five and a half inch casing was set at 9500 feet and cemented with three hundred sacks. The casing was perforated from 9467 feet to 9490 feet in the Bough "C" formation.

The well was acidized with five hundred gallons of mud acid, breakdown pressure 6000 PSIG, average injection rate three BPM at 2700 PSIG, and in five minutes went on vacuum. Opened well up after four hours shut in and it flowed twenty-six barrels of oil in twelve hours and died. The well was then retreated with 2500 gallons of regular acid. Average injection rate four BPM at 4000 PSIG. Well went on vacuum after twenty minutes. Shut well in overnight. The well was then opened up and it would not flow. Started swabbing and recovered forty-five barrels of acid water in twenty-four hours. Well was shut in for twenty-four hours. Started swabbing after shut in period, and recovered twenty barrels of fluid cut 50% water. Fluid level was at 8500 feet.

Fracture treated with 40,000 gallons of Penetrol, 15%

jelled acid, and 75 barrels of oil. Acid treated down two and three-eights inch tubing. Average injection rate 3.2 BPM at an average pressure of 7000 PSIG. Maximum pressure 8300 PSIG. Final pressure 6,000 PSIG.

Final treatment was used as a last resort or as an experimental treatment. This consisted of 150,000 gallons of salt water. Average injection rate twelve BPM at 6400 PSIG. Maximum pressure 6800 PSIG. One hour shut in pressure 5500 PSIG. Well would not flow and was placed on pump. Production average from three to five barrels oil per day.

Q How did you treat the salt water, did you do it through the casing?

A No. We ran a three-inch tubing and fracture treated it down the three-inch tubing due to the fact our casing wasn't heavy enough.

Q Have you formed any opinion as to why these various treatments did not properly react, particularly with reference to the salt water?

A Yes, I have analyzed both of them. Our treatment was ineffective because the acid was spent before reaching out into the formation. This was due to the slow rate of injection caused by having to treat down the 2-3/8 inch tubing and the Western Company was in agreement with our conclusions on this.

Q Why did you have to use the 2-3/8 inch tubing?

A We used the 2-3/8 tubing because we did not use heavy

enough casing, and it is our opinion the salt water was detrimental to reservoir as the sample log indicates the formation consists of lime with porosity impaired by secondary deposition containing anhydrite and bentonitic shale. When it swells, consequently the reservoir permeability has been impaired, which restricts the flow of oil into the well bore.

Q Mr. Joy, please refer to your Exhibit Number 2 and explain to the Commission what it is and what it shows.

A Exhibit No. 2: This is a structure map contoured on top of the Bough "C" formation. The red line depicts a vertical cross-section we have prepared. It shows the No. 2 well with respect to the offset wells and our Green No. 1 well approximately two and a half miles east.

Q When was this Green well in Section 30 completed, approximately?

A Recently.

Q And your No. 2 well in Section 27?

A It was completed sometime in May -- June, the latter part, I believe -- May 25th.

Q Does this contour map show any closures structurally?

A No, sir; it does not.

Q Does the contour show intervals?

A Yes, sir.

Q Refer to your Exhibit No. 3 which is the cross-section as indicated by Exhibit No. 2 and explain to the Commission what

it is and what it shows.

A Exhibit No. 3: This Exhibit is a vertical cross-section starting with the top of the Wolfcamp formation and continuing through the bottom of the Bough "C" formation. It is based on interpretation of the mechanical logs from the Ohio King-Davis Federal No. 2 and 3 wells, and David Fasken King-Davis Federal No. 2 well and Green No. 1 well. As you can see, the pay is uniform in both the vertical and the east-west horizontal directions.

Q Is there any difficulty in picking the top of the Bough "C" formation?

A No, sir.

Q They correlate very well?

A Yes.

Q Including the formation in the No. 2 well?

A Yes.

Q And the Green well is approximately two miles from it?

A Yes, sir.

Q Are there any other comments you'd like to make with respect to this cross-section?

A No, sir.

Q It does show that the formation is practically level, uniform, about the same thickness throughout this whole interval?

A Yes, sir.

Q Is there any reason to believe from the log of these wells that the formation encountered in the Bough "C" and David

Fasken well is any different from the other producing wells in the area?

A No, sir.

Q What are the characteristics of the Bough "C" formation?

A Well, we believe the formation is uniform throughout in its strategraphic structure in both permeability and porosity.

Q What is it, limestone and anhydrate?

A That's right.

Q Is it intermixed, interbedded with any shale?

A Yes, sir, it is.

Q That's a general characteristic throughout the entire area?

A Yes.

Q Now, refer to Exhibit No. 4 and explain to the Commission what this shows.

A The shaded area on this map --

Q Does it show the King-Davis Federal lease, the west half of 27?

A Yes. With respect to our King-Davis Federal No. 3 and 4 wells to the west.

Q All right; go ahead.

A This map shows the estimated horizontal area contaminated by the salt water treatment. The radius of this area is estimated to be two hundred forty feet. This damaged area was calculated from equations derived by Dr. Crawford with Western

Company. Also, the bottom of the new hole with respect to the bottom of the present hole is shown. The bottom of the new hole will be three hundred feet directly west of the present bottom hole. Surveys will be taken when drilling to control deflection and direction. The final directional survey will be filed with the Commission.

Q Can you explain briefly to the Commission how you propose to directionally drill this well to the proposed location of three hundred feet west of the Federal acreage?

A Do I have plat No. 5?

Q Refer to plat No. 5 in your explanation.

A This is a vertical cross-section of the intended new hole. We anticipate attaining twelve degree deflection withint four hundred eighty feet below side track point. The reason for obtaining the twelve degrees within the four hundred and eighty feet from the side track point is to get our deflection before going through the Arbo reef which would cause us to lose both deflection and direction.

Now, we will keep running continuous surveys while dualing this hole in order to keep this line at about three hundred feet west of the present hole.

Q Who is going to do this?

A Homeco.

Q Did they prepare Exhibit 5?

A Yes, sir.

Q You might also explain to the Commission just how you intend to handle this as far as present casing is concerned.

A We anticipate going in and squeezing off the perforations in the bottom of the well, then cut casing at 6800 and pull five and a half inch casing. We will then set a plug at 6800 feet which will be continued 300 feet on up the hole to 6500 feet. We then hope to set a whipstock on top of the cement at 6500 feet and will project out with a 6-1/4 inch bit to a distance of 50 feet. We'll then go back in and remount with a 5/8 inch bit and continue the drilling and controlling the direction and deflection by use of stabilizers and reamers.

Q I believe I understood you to say you made a directional survey upon completion and filed a copy of it with the Oil Conservation Commission?

A Yes, sir.

Q Is Homeco Company a specialist in directional drilling?

A Yes, sir, they are.

Q Do you anticipate any particular difficulty in redrilling directionally this well and locating it 300 feet west of the present location?

A No, sir. That is the reason we are going twelve degrees within the first 480 feet.

Q By so drilling, and relocating this well 300 feet west of the present location, you would be out of the contaminated area?

A Yes, sir. That is our contention after working out the calculations that Dr. Crawford has derived. We anticipate we will be out of the contaminated area.

Q I assume that you could drill this well directionally and relocate it in any direction from the present location?

A Yes, sir, we could. We could go east. We could place it within 330 feet of the east line and get more uniform drainage. We anticipated going westward. The 80 acre lease runs from east to west and we stepped out two and a half miles directly east and brought in a producer with a potential of 309 barrels a day.

MR. HINKLE: We would like to offer -- first, were all Exhibits, 1 through 5, prepared by you or under your direction?

A Yes, sir, under my direction.

MR. HINKLE: We would offer Exhibits 1 through 5 into evidence.

MR. UTZ: Without objection, Exhibits 1 through 5 will be entered into the record of this case.

Did you say your unit runs east and west?

THE WITNESS: Yes, sir, that's the way we started to develop the lease. If you look back on the plat, we have the No. 3 well assigned to the north half of the southwest quarter and we also drilled the No. 4 hole that was in the south half of the southwest quarter.

MR. UTZ: The dedication to this well will be in the south half of the northwest quarter of Section 27?

THE WITNESS: Yes, sir.

MR. UTZ: You own the entire west half of 27?

THE WITNESS: Yes, sir.

MR. UTZ: Are there any other questions of the witness?

MR. MORRIS: Yes.

EXAMINATION

BY MR. MORRIS:

Q Mr. Joy, as I understand it, the surface location of the well is exactly in the center of the quarter section, and under the rules and approval you would have one hundred fifty foot tolerance from the center of that quarter section?

A Yes, sir.

Q So, with respect to where the bottom of the hole is, with reference to the surface location, you are actually going to be a hundred and fifty feet farther west of an orthodox location?

A Yes, sir.

Q Now, at the end of your testimony you stated that certain wells had been potentialled at a given rate. I missed that testimony.

A That was for Green No. 1 well which was an approximate two and a half mile step out directly east of the King-Davis Federal No. 2 well.

Q That's the No. 1 well shown on the cross-section?

A Yes, sir.

Q Has there been any development between that well and

the subject well today along that cross-section?

A Not to my knowledge. There have been no holes drilled on that.

Q Is there any indication that your No. 2 well, the subject well today, is on the edge of the pool?

A No, sir, there is not. The Ohio well in Section 21 is further down than the No. 2. The Green is also lower slightly -- 15 feet lower -- on structure than the King-Davis No. 2.

Q Is there any development to the north of your No. 2 well in this pool?

A No, sir; not to my knowledge.

MR. MORRIS: That's all. Thank you.

MR. UTZ: Are there any other questions of the witness?

REDIRECT EXAMINATION

BY MR. HINKLE:

Q Referring to Exhibit 4, you show proposed location on your lease covering the west half of 27 there in the northwest of the northwest. Do you propose to drill that well?

A Yes, sir.

Q In other words, you do believe --

A According to the general manager, we will drill No. 1 well.

MR. HINKLE: That's all.

MR. UTZ: Are there any other questions of the witness? The witness may be excused.

(Witness excused.)

MR. UTZ: Are there any other statements in this case?

MR. HINKLE: I have something I'd like to offer for the record. In the case file of this case we have copies of waivers from the offset operators including the Skelly Oil Company and certain individuals, being Sam Boren, Carper Drilling Company, Inc., Sun Ray Midcontinent Oil Company, Carl B. King, Roger H. Davis and the Ohio Oil Company. Texaco, Inc. has also submitted a waiver with the proviso that allowables assigned to the well reflect the decrease in productive acreage that exists at this location. Otherwise, they have no objection to the granting of the application.

I might state that this application does not mention allowable at all. It goes under the assumption that the entire south half of the northwest quarter is productive. Of course, the testimony now shows that outside of this contaminated area two hundred and forty feet radius from the present well they believe to be productive. If there is any trouble in allowables, it seems to me it would have to be on the application filed by Texaco or somebody else's to decrease the allowables because that is not involved here. All we are asking for is an order to permit directional drilling and recompletion of the well three hundred feet from the present location.

MR. UTZ: Are there any other statements in this case? The case will be taken under advisement.

C E R T I F I C A T E

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, THOMAS F. HORNE, 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 by me and/or 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, the 5th day of July, 1961, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Thomas F. Horne
NOTARY PUBLIC

My commission expires:

May 4, 1965

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2326 heard by me on June 29, 1961.

Examiner
New Mexico Oil Conservation Commission