

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 30, 1974

EXAMINER HEARING

IN THE MATTER OF:

Application of Randolph M.
Richardson for a unit agree-
ment, Eddy and Chavez Counties,
New Mexico.

Case No. 5160

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Applicant:

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I N D E X

	<u>Page</u>
H. S. CAVE	
Direct Examination by Mr. Richardson	3
Cross Examination by Mr. Nutter	13

E X H I B I T S

	<u>Marked</u>	<u>Admitted</u>
Applicant's Exhibit "A"	--	13
Applicant's Exhibits Nos. 1 thru 4	--	13

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MR. NUTTER: Call Case 5160. Application of Randolph M. Richardson for a unit agreement, Eddy and Chavez Counties, New Mexico.

MR. RICHARDSON: Randolph M. Richardson, appearing on behalf of Applicant, myself. I have one witness, Mr. Cave, to be sworn.

(Witness sworn.)

MR. RICHARDSON: Mr. Nutter, you have been handed a unit agreement on this case, too. I now hand you geological report marked Exhibits 1 through 5.

H. S. CAVE

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

DIRECT EXAMINATION

BY MR. RICHARDSON:

Q Mr. Cave, would you please state your name and present occupation?

A H. S. Cave, consulting geologist, Roswell, New Mexico.

Q Would you please state your educational and professional background which would enable you to testify as an expert geologist?

A I have an AB degree, University of Missouri, one year

CAVE-DIRECT

Page.....4.....

private work in geology, University of Missouri, two years graduate work in geology, University of Texas. Subsequent to that I have worked two seasons with the U. S. Geological Survey, served a year of Geological Survey at Georgia, four years with Texas Company, nine years as District Geologist for Gypsy Oil Company for New Mexico and subsequently to that, geologist for Phillips Petroleum Company; have done consulting work for Malco Refineries, for Sunray Mid-Continent Oil Company, Phelps Dodge Corporation and various independent operators.

I have done research work in Alaska, Turkey and Asia and have worked geologic work, in more than 20 states in the United States.

Q Mr. Cave, are you familiar with this West Hope Unit Area and the matter contained in the Application to the Commission for approval of a unit agreement?

A Yes, sir.

MR. RICHARDSON: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, they are.

BY MR. RICHARDSON:

Q Is the formal-unit agreement prescribed by Federal regulations and as recently approved by the Commissioner of

CAVE-DIRECT

Page..... 5.....

Public Lands?

A Yes.

Q Has the unit area been designated by the United States Geological Survey as an area logically suitable for development under a unit plan of operation?

A Yes, sir.

Q Would you please tell the Commission the total number of acres within the unit area and the number of percentages of acreage of Federal, State and Patented lands?

A The total acreage is 13,428.16 acres. The Federal lands are comprised of 6,352.62 acres or 47.24 percent of the unit area. The State of New Mexico lands comprise 6,434.60 acres, amounting to 47.85 percent of the unit acres. The Patent Fee lands total 660.94 acres which gives .491 percent of the unit area.

Q Would you please tell the Commission the Township and Ranges in which the unit is located and the approximate location with reference to the nearest town?

A Well, the main portion of the unit lies in Township 17 South, Range 21 East, Eddy County, and a lesser part lies in Township 17 South, Range 20 East, in Chavez County. In the distance -- the closest town would be Hope and by road some 10 to 12 miles, as I recall, 14, I could check that very

CAVE-DIRECT

Page..... 6

carefully here.

Q That eastern boundary is some three or four miles.

A Yes, three to four miles west of the Village of Hope.

MR. NUTTER: Mr. Cave, I believe a portion of the unit also lies in Township 18 South?

THE WITNESS: Yes, I beg your pardon. In 18 South, 20 East in Sections 7, 8 and 9 of Township 18, 21.

BY MR. RICHARDSON:

Q Could you please refer to the geological survey that has been introduced in this case as Exhibits 1 through 5?

A Yes.

Q Was this report prepared by you?

A It was.

Q Could you please review the report referring to the maps by name, indicating the significance of such maps and I might point out that the Exhibit, now labelled Exhibit 1 there, which is the written report, is Exhibit 1 and the written report refers to maps by different numbers and Mr. Cave's map No. 1 will be your map, Exhibit No. 2. So, it might be better to refer to the maps by name, rather than numbers.

CAVE-DIRECT

Page.....7.....

MR. NUTTER: Maybe to avoid confusion here, the report refers to these maps as 1, 2, 3 and 4.

MR. RICHARDSON: Right.

MR. NUTTER: Let's call this Exhibit "A" then, this written report.

MR. RICHARDSON: And the number of the maps remain as they are.

When he is talking in reference, this map No. 1 that will be his map No. 1. It is furnished in the upper-right-hand corner. That will be Exhibit No. 1?

MR. NUTTER: Right.

A This map represents a sub-surface interpretation on the top of what the writer refers to as Pennsylvanian formation. It's the carbonate zone, variously referred to sometimes as Wolfcamp, but that's academic. It is the carbonate section. Now, these contouring on there is naturally somewhat limited, because of the lack of wells, but in practically every case, the values as assigned to these wells has been determined by the writer from microscopic examination of the samples. You will note that on one or two of the wells, the figure followed by the letter "R" and that means that is the reported value on top of this carbonate unit, that which the writer considers to be reliable by

CAVE-DIRECT

Page.....8.....

checking against other records. There are wells in the area that -- it is the writer's opinion they have no samples and the records would be very wrong to use, because they are not reliable. This thing indicates a geologic picture of something and in the southwest corner of Township 17 South, Range 21 East and on it it's shown the interpretation which appears to be logical and it is -- note it is a rather critical area so we have structural lines running in more than one direction. It's a cumulative thing, but we have shown on here the continuation so called Hueco Flexure which is south, results in faulting. Taking into account the various things, this map was originally taken from a regional map, but subsequent to that, additional information has been gathered from samples and the present interpretation shows some changes from the regional, but of very minor consequence. I feel that --

Q (Interrupting) Go ahead. That probably is enough explanation to that one. You might go to No. 2 and just show briefly show or tell what it shows?

A Map No. 2 is an interpretation on dip and strike basis of the surface expression of structural conditions. The surface there consists of very complete limestones, so that we are not bothered with slumping in recording of these

dips. It is interesting to note these two maps were made at very different times. This surface interpretation of structure was made some three or four years after the regional map on the sub-surface. It is made entirely independently but when completed and superimposed, it was remarkable the coincidence between the surface structural interpretation and sub-surface structural interpretation.

Q Your next map is No. 3 is a --

A (Interrupting) This No. 3 map is a combination on which the same sub-surface interpretation has been shown and based on that and particularly related to the units are dip and strike symbols as recorded from field observations of the surface and it will be noted that there are a tremendously close coordination between the surface and the sub-surface interpretation.

Q Your No. 5 map would be?

A No. 5 map would be an isopach map, equal thickness map of the Pennsylvanian "H". These -- it will be noted there that there are not a great many control points. This map in turn, was taken from a regional map of Eddy County. These thicknesses of the Pennsylvanian bed have been determined by the writer from the sample examinations so that taking the regional and taking this map even though the control is

CAVE-DIRECT

Page..... 10.....

limited. It appears from all evidence to be a reasonable interpretation of thickness and I think that those thicknesses could reasonably be accepted because we have enough control points at the well spaced on the thing to give what the writer considered a very accurate interpretation. It cannot be exact because of local variations. Within reasonable limits I think it is quite accurate.

Q Could you please tell the Commission here your conclusions as to the formation likely to be encountered and considered prospective or productive?

A It's quite a number of the section is fairly well developed there. As far as potential production, I feel that the Pennsylvanian bed and the underlying Dolomite beds commonly referred to as Devonian are the two really prospective horizons.

On the history of the area the beds of Pennsylvanian edge with the alternating sandstones, limestones and shales appear to be most highly prospective for natural gas. The underlying Dolomite on its history in the general area would appear to be more productive or prospective for production of oil, but either horizon can produce both oil and gas.

Q Could you please give the Commission the projected depth and proposed location for the initial test well?

CAVE-DIRECT

Page..... 11

A On the basis of information, I would suggest that the initial well be drilled in the west half of Section 32, Township 17 South, Range 21 East and on the basis of available evidence, the lower -- the beds of Pennsylvanian age should be encountered somewhere about 3,800 to 4,000 feet. Kind of hard to remember all these figures. On the basis isopach data the top of the Dolomite should be encountered around 6,800 feet. So the projected depth of 7,000 feet should give a relatively accurate test of the area.

Q I might point out there our unit agreement proposes a well to the depth of 6,600 feet, which we think will go clear through our test of the Pennsylvanian and use that as a cutoff depth in case it probably didn't want to be required to drill any deeper than 6,600. So that is the cutoff depth. The well might actually go a little deeper.

A Well, in depth we have a potential productive horizon below this so called Devonian we have the upper Ordovician of the Montoya age and the Lower unit of the Ordovician of the El Paso, but those units have produced in southeast New Mexico. In view of the fact there is no known formation shut off between the so-called Devonian Dolomite and the Montoya Dolomite in the event that water is encountered in the Devonian Dolomite, it would be useless then to go on and drill

to those Ordovician units because we have no known shut-off and water in the White Dolomite could be expected to be present in the two lower units.

Q Have the other working interest owners within the unit area been contacted?

A Yes, they have.

Q In your opinion, what percentage of the working interest will be committed and what percentage of fee royalties will be committed?

A Under my observation, 95 percent of the working interest will be committed and 90 percent of the royalty interest will be committed.

Q In your opinion, will the operation of this area under the proposed unit plan of operation be in the interest of conservation and prevention of waste?

A Yes, sir.

Q Will the different institutions of the State, if any, receive their fair share of production if established?

A Yes.

Q In the event of production, will the correlative rights of all parties to the unit agreement be protected?

A Yes.

Q We would now like to enter the geological report

CAVE-DIRECT

Page.....13

in evidence in this case.

MR. NUTTER: The geological report, Exhibit "A", and maps 1 through 4 will be admitted in evidence.

I think in your testimony when you got to that last map you referred to it as 5 because that's the way it was originally marked, but it is Map No. 4. It's the Isopach Map 4 in your geological survey.

THE WITNESS: Yes, that is correct, sir.

MR. NUTTER: So Exhibits "A" and Exhibits 1 through 4 will be admitted in evidence.

(Whereupon, Applicant's Exhibit "A" and Applicant's Exhibits Nos. 1 through 4 will be admitted in evidence.)

MR. RICHARDSON: That was all we had. Do you have any additional questions?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Cave, it is my interpretation of your testimony -- see if I'm correct -- that you feel that you do have a structural feature here which is essentially encompassed with the boundaries of the proposed unit area?

A Yes, sir, I do.

Q Do you propose to drill a well in the west half

of Section 32, which would be the approximate high?

A That would be, in my opinion, the -- probably the most prospective thing as far as we know.

Q You anticipate 95 percent working interest and 90 percent royalty interest?

A Yes, sir.

Q Have the U.S.G.S. and the New Mexico Public Lands given tentative approval to the unit agreement?

MR. RICHARDSON: The unit agreement as our unit area has been designated by the U.S.G.S. The Application for approval to the Commission was filed this morning.

MR. NUTTER: I see. So you don't have approval of the Commissioner of Public Lands as yet?

MR. RICHARDSON: Not as of this date.

MR. NUTTER: Are there any further questions of Mr. Cave? You may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Richardson?

MR. RICHARDSON: No.

MR. NUTTER: Does anyone have anything they wish to offer in Case 5160?

MR. CARSON: If it please the Hearing Officer, my

name is Joel Carson. I represent Wilson Oil Company where Jones control 240 acres in Section 26, 17 South, 21 East. They'd like to -- they don't want to offer any evidence, but just to say they'd like to be deleted from the unit area. I think it is about three-and-a-half miles from the proposed test well.

MR. RICHARDSON: That is part of the five percent we are considering as not being committed, but the unit area cannot be changed.

MR. NUTTER: That would be in Section 26?

MR. RICHARDSON: It is on the extreme northeast end of the unit.

MR. NUTTER: That's approximately 240 acres, Mr. Carson?

MR. CARSON: Yes, sir.

MR. NUTTER: This is included in the unit area, but not necessarily committed to the unit area, is that right?

MR. CARSON: They wanted to make the record show that they had requested to be deleted.

MR. NUTTER: I see. Thank you, Mr. Carson.

Does anyone else have anything to offer in this case? We will take the case under advisement.

