THE RAILROAD COMMISSION OF TEXAS

Hearing Held in Midland, Texas

DOLLARHIDE CLEARFORK, DEVONIAN,
ELLENBERGER, AND SILURIAN FIELDS

October 23, 1952

TRANSCRIPT OF TESTIMONY

H. Ray Pardue
Official Reporter.

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

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OIL AND GAS DOCKET NO. 126

#8 - 24,657

IN RE: CONSERVATION AND PREVENTION OF WASTE OF CRUDE PETROLEUM AND NATURAL GAS IN THE DOLLARHIDE CLEARFORK, DOLLARHIDE DEVONIAN, DOLLARHIDE ELLENBERGER, AND DOLLARHIDE SILURIAN FIELDS, ANDREWS COUNTY, T E X A S

Midland, Texas
October 23, 1952.

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B E F O R E

HON. EDWIN L. MECHEM, CHAIRMAN,
NEW MEXICO OIL CONSERVATION COMMISSION

HON. GUY SHEPARD, MEMBER
NEW MEXICO OIL CONSERVATION COMMISSION

HON. R. R. SPURRIER, SECRETARY
NEW MEXICO OIL CONSERVATION COMMISSION

HON. ERNEST O. THOMPSON, COMMISSIONER
RAILROAD COMMISSION OF TEXAS

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TRANSCRIPT OF PROCEEDINGS

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APPEARANCES

Name	Representing
Mr. William B. Macey, Chief Engineer	New Mexico Oil Conservation Commission
Mr. George Hirschfeld, Engineer	
Mr L. C White, Attorney	
Mr. A. L. Porter, Jr., Proration Manager	
Mr. George A. Graham, Attorney	
Mr George F. Singletary, Ass't Chief Engineer	Railroad Commission of Texas
Mr J C Blackwood	Amerada Petroleum Corporation
Mr H. E. Massey	Cities Service Oil Company & Cities Production Corporation
Mr H. W. Swaim	Continental Oil Company
Mr. Frank O. Elliott	L. E. Elliott, Elliott & Hall
Mr James D. Walker	Gulf Oil Corporation
Mr. J. C Winton	
Mr. N. B Newsom	
Mr. H. L. Stroughan, Jr.	
Mr. Claude E Upchurch	
Mr. J. W. House	Humble Oil & Refining Company
Mr. J. L. Pouder	
Mr. R. S. Dewey	
Mr W E Hubbard	
Mr. Charles E. Shaver	

APPEARANCES

Name	Representing
Mr. Robert J. Leonard	Leonard Oil Company
Mr. E. P. Keeler	Magnolia Petroleum Company
Mr. Earl G. Thurman, Jr.	
Mr. Ollie J. Ford, Jr.	
Mr. Robert B. Haynie	J. C. Maxwell
Mr. Charles C. Loveless, Jr.	New Mexico Oil & Gas Ass'n
Mr. Raybourne Thompson	The Pure Oil Company
Mr. H. H. L. Keener	
Mr. Jack T. Dure	
Mr. Francis Falcon	Shell Oil Company
Mr. M. K. Main	
Mr. Allen Ehlers	Skelly Oil Company
Mr. George Selinger	
Mr. J. C. Chapman	
Mr. J. D. Cooper	
Mr. James K. Smith	Stanolind Oil & Gas Company
Mr. W. A. Blankenship, Jr.	
Mr. D. K. Spellman, Jr.	The Ohio Oil Company
Mr. Wm. E. Bates	The Texas Company
Mr. John Mills	
Mr. C. J. Ray, Jr.	

COMMISSIONER THOMPSON: This is Oil and Gas Docket No. 126 #8-24,657, in re the conservation and prevention of waste of crude petroleum and natural gas in the Dollarhide Clearfork, Dollarhide Devonian, Dollarhide Ellenberger, and Dollarhide Silurian Fields, Andrews County, Texas. Austin, Texas, October 7, 1952. Notice of Hearing pertaining to a determination of equitable allowables for the Dollarhide Clearfork, and the rest of the fields as named above. Notice is hereby given to the public, and so forth, copy of which I shall hand the Reporter.

Since these Dollarhide reservoirs extend across the State lines and inequities in field allowables exist as a result of differences in the methods of their determination in the two States, a previous joint meeting was held in Santa Fe, New Mexico, by the Oil Conservation Commission of New Mexico and the Railroad Commission of Texas for the purpose of discussing the problem of inequities in withdrawals from the Dollarhide reservoirs in the two respective Sovereign States; and as a result of that meeting and because of the progress in the development of the fields, this hearing was called, and is to be heard jointly with a similar hearing to be called by the Oil Conservation Commission of New Mexico for the purpose of determining what allowables are necessary to bring about an equity in the withdrawals of oil from the Dollarhide Clearfork, Devonian, Ellen-

berger and Silurian reservoirs extending across the State lines of Texas and New Mexico.

Attending this hearing today and conducting this hearing, representing the New Mexico Conservation Commission is The Honorable Richard Spurrier, The Honorable Guy Shepard, representing that State, and Ernest O. Thompson, a Member of the Railroad Commission, representing the State of Texas. The New Mexico notice of hearing will be entered into the record jointly with the Texas notice. Mr. Spurrier and I have jointly prepared a statement.

Will you read it, Mr. Spurrier?

MR. SPURRIER: This is headed, "Dollarhide Oil Field Hearing, held jointly by the New Mexico Oil and Gas Conservation Commission and the Texas Railroad Commission, the Oil and Gas Conservation Body of the State of Texas.

"This hearing is perhaps the most important conservation hearing ever held since conservation of oil and gas was established by law. The reason for this importance is that today two sovereign states, New Mexico and Texas, are holding jointly a hearing to prescribe conservation rules and regulations under the laws of their separate sovereign states for the prevention of physical waste in the production of oil and gas in the Dollarhide Field, which oil field lies along the line and

and overlaps the line into each of these states, but today this joint hearing between New Mexico and Texas on the Dollarhide Field includes Federal lands. At a preliminary hearing of the Dollarhide Field which was held jointly by the same two Commissions a few months ago in Santa Fe, New Mexico, a representative of the Federal Government, U. S. Geological Survey, testified that the government was in the position of any other land owner, which, of course, is the proper position for a state or a Federal Government to take with relation to their lands when developed along with private citizens lands under conservation laws, rules and regulations. The government is not paramount, they are a land owner. The government, of course, cannot expect any more favorable or any less favorable consideration at the hands of regulatory commissions than any other private land owner or lease owner or royalty owner. All of the above is reflected in the transcript of the hearing on this Field held in Santa Fe, New Mexico. It was decided at the Santa Fe, New Mexico, preliminary hearing that when the field was sufficiently developed to show the reservoir characteristics, that an additional hearing would be held for the purpose of establishing proper rules and regulations for the production. This is that hearing being held today in Midland, Texas. The Dollarhide Oil Field has several producing horizons.

		Schedule Allowable
"Clear Fork	85 Wells	7,281 barrels
Devonian	134 Wells	10,241 barrels
Ellenberger	46 Wells	3,984 barrels
Silurian	59 Wells	8,653 barrels
East Dollarhide Devonian	4 Wells	155 barrels
East Silurian	1 Well	66 barrels
	329 Wells	30,380 barrels

"The authority for joint state action was granted by the Congress of the United States pursuant to the United States Constitution which provides for the sovereign states entering into interstate compacts, the interstate oil compact was ratified and approved by the Congress in 1935 and has been re-approved and re-ratified several times since. This ratification and the treaty entered into by the sovereign states pursuant to this ratification gives the states the right to do all things necessary to prevent physical waste in the production of oil and gas.

"It is notable that herein seventeen years ago the sovereign oil producing states authorities, by entering into the compact and getting the consent of the Congress to operate under that compact, made unnecessary any Federal interference or Federal control of the oil and gas producing business."

COMMISSIONER THOMPSON: Will the witnesses who expect to testify rise and be sworn; just rising doesn't mean you

have to testify. It makes you eligible so that we won't have to take time to swear you again. You might want to say something; get up and be sworn and save doing it again. Will you raise your right hands?

(WHEREUPON, ALL THE WITNESSES WERE DULY SWORN.)

COMMISSIONER THOMPSON: Who will favor us by leading off? Mr. Thompson?

MR. THOMPSON: My name is Raybourne Thompson, representing Pure Oil Company, which is one of the operators on the Texas side of the Dollarhide Fields. Pure has been in this field since discovery. It has assembled all of the information that has been available to it on this field and we would like to present some of that testimony if the Commission would like to hear it.

COMMISSIONER THOMPSON: We have agreed, both State Commissions, that we would be honored to have you present it in your own way.

MR. THOMPSON: We would like to present Mr. M. H. L. Keener first.

MR. KEENER: I would like to hand you these duplicate exhibits. This is Exhibit I and this is Exhibit 2. (Indicating).

COMMISSIONER THOMPSON: Proceed.

Q (By Mr. Thompson) Would you state by whom you are employed and in what capacity?

A I am employed by The Pure Oil Company, Division Development Geologist, Texas Production Division at Fort Worth.

Q All geological problems of The Pure Oil Company in this Dollarhide Field is under your direct supervision?

A That is correct.

Q Would you please give us the geology of this field, Mr. Keener, including when it was discovered and such other pertinent information that bears on the geology of the field?

A With your permission, I would like to talk from the exhibits hanging on the wall. The Dollarhide Field is located in the extreme Southwest corner of Andrews County, being at the intersection of Block 852, Public School Land Survey; Block A-55, Public School Land Survey in Texas, and in Township 24-South, Grange 3018 in New Mexico, and Township 25-South, Grange 3018, also in New Mexico. It is geographically located ten miles East of Jal, New Mexico, thirty miles Southwest of Andrews, Texas, twenty miles North of Kermit. The field was discovered by Magnolia-Humble joint venture, E. P. Cowden No. 1 in June, 1945. This well was a Devonian completion. The West Dollarhide discovery was the Skelly-Seaboard and Maxwell State No. 1-J, completed in August, 1951, as an Ellenberger producer. Both fields are now producing from four common pays, the Clearfork, or known in New Mexico as Drinkard, at approximately 6100'; the Devonian at 7400'; the Silurian at 8150', and Ellenberger at 9600'. In addition, there have been two completions on the extreme West side of the New Mexico area, between sands; I believe shown on the exhibit as ground wells. The average elevation for this area

is 3150' above sea level.

Q Mr. Keener, let's take up your different reservoirs. Suppose first you explain Pure's Exhibit No. 1, I believe that's how it is identified.

A Exhibit 1 is a location map of the two areas, scale one inch to a thousand feet; the various colors representing the completions in each of the four producing horizons are shown, common to both Texas and New Mexico. The colors at the bottom correspond to the colors on the wells and also correspond to the outline of the productive area shown on the map; the blue line representing the Clearfork or Drinker production, that is, wells completed to date, and the yellow representing the Devonian production. The Silurian or Ellenberger wells have not been shown on this map but in Texas they are restricted to approximately three and a-half sections on the crest of the structure which is located along the East side.

Q What has been the pattern of development on the Texas side?

A On the Texas side, wells have been drilled in general to the lowermost producing horizon with twins or dual completions being made for the shallow pay.

Q What is the well density on the Texas side?

A All pays have been developed on 40 acre spacing.

Q Is that what the Commission rules provide for?

A For the three lower pays, field rules provide for that spacing.

Q 40 acre spacing. Suppose you explain Pure's Exhibit No. 2.

A The line of cross-section represented by Exhibit No. 2 is shown

on the map, Exhibit 1, by a red line. It is a general East-West section to the North half of the field, of the Texas Field, and to the Central part of the New Mexico area. The four pays are shown on the cross-section in the same colors as shown on the map, the uppermost being Clearfork, then the Devonian, Fusselman -- correction, that's the Silurian pay, the Fusselman being the name of the formation in which the Silurian pay is encountered, and the Ellenberger.

Q Suppose you tell us something about the reservoir rock, or whatever you call it -- the formation.

A The number of producing wells in the Texas area, in the Clearfork reservoir, as of October 15, was 83; the New Mexico area had two Drinker completions. These are shown in the blue boxes.

Q Drinker is the same as Clearfork?

A Yes, sir, it is called Drinker in New Mexico. The geological structure of the Clearfork reservoir contoured on top of the Tubb formation, with the marker at the top of the Clearfork pay, shows the North-South trending anticline approximately five miles long and two and a-half miles wide located in Texas and separated by a saddle which follows a structural high in New Mexico. Indentations on the Tubb contour reflect, in a general way, the pre-Permian faulting. Dips range from 250 to 500' per mile. In the Texas area, the highest point on the structure -- this area (Indicating) -- the Northeast part of the field, is -2920'. In the New Mexico area, the highest point on the structure is only 10' higher, located on the

However, there is some indication in edge wells that some water-bearing porosity lenses have been penetrated at this depth. The field limits will probably be established by lack of porosity development.

Continuity of the Clearfork pay from Texas to the New Mexico area has been shown by the six producing wells in this horizon on the Texas side. (Indicating). There is a producing Clearfork well on each of these locations on the line of cross-section. There have been numerous drill stem tests in 14 New Mexico wells which have penetrated this section as well as the two Clearfork completions in the West Dollarhide area.

Westward from the State line, the Gulf Leonard 16-E made three drill stem tests in the Clearfork, or Drinker, each of which recovered oil and gas-cut mud, and one of which circulated out 16 barrels of oil. The next well to the West, Gulf Leonard "E", recovered oil and gas-cut mud, together with small quantities of free oil. Gulf took their drill stem tests over a 779' interval.

The Skelly-New Mexico State 1-J, the discovery well for the West Dollarhide Field, flowed 21 bbls. of oil in two and a-half hours in a 120' section at the top of the Clearfork pay and had very encouraging results from the second test over an additional 620' of section.

Westward along this line, other drill stem tests have indicated oil and gas-cut mud and small quantities of free oil and the last position on the line of cross-section has

Skelly State 4-L. The Clearfork pay section consists of dense, limy, crystalline limestones and Dolomite with numerous thin shales and some Anhydrite streaks. The top of this pay section occurs at approximately 100' below the top of this Tubb marker. Porosity is scattered throughout the section from the top of the pay for as much as 900' into the section. Average gross pay is 650', approximately thirty percent of which can be considered net pay. Interstitial porosity development in both the Dolomite and Limestone and scattered porosity is present throughout the section. Best development of this porosity is in the 120' zone immediately overlying the line of section which is found at approximately 520' below the Tubb marker.

Within this zone, core analyses have indicated porosity as high as twenty percent; permeabilities of as much as 70 to 80 millidarcys. However, an average of ten percent porosity and ten millidarcy permeability is more representative of the net pay throughout the section. Water saturation is eighteen percent, from core analyses.

COMMISSIONER THOMPSON: You just take your time, now; there is no rush.

A Although the water level is not clear-cut in the Clearfork, a figure of -3750 is believed to be a conservative estimate for the Texas area. A large number of wells have been completed at this depth in open hole to produce, without producing water, and some have been completed as low as -3800'.

been a Clearfork completion.

Q You think that the oil accumulation in this reservoir is continuous, Texas over New Mexico?

A Yes, sir.

Q Within the limits of the field as it has now been defined?

A The lower portion of the shaded area on the cross-section represents this water level of -3750. I believe that applies equally to both areas, in both territories in each of the two States.

Q Will you proceed with the Devonian reservoir and give us the information on that?

A Similar data on the Devonian, there have been 134 Devonian completions in Texas and 6 in New Mexico, one complete in the past week. The current productive area in Texas is based on 40 acres per well and would be 5360 acres, and 240 acres in New Mexico. The general geological structure contoured on top of the Devonian formation resembles, in a general way, the shallower Clearfork structure. However, the dips are steeper and there is faulting throughout the field. The pre-Permian structure, of which the Devonian is the top of the pre-Permian member in this area, shows faulting bordering the Eastern side of the Texas field, and we have cross-faults throughout the Texas area as well as some faulting in the New Mexico area. The two areas of Texas and New Mexico are connected at the top saddle, the lowest point of which is still more than 700' above the Devonian water level. This is

represented on the cross-section by the yellow band, representing the Devonian pay section, and the dashed yellow line representing the Devonian water level. The line is 5300'. On the top of the Texas structure, the Devonian section has been removed by erosion; only one well in the New Mexico area has indicated slight truncation. However, the top of the structure in the two areas is practically level, even though in the Texas area there has been a full 200' of section. The Devonian section is a line of Dolomite with 40 to 60' of cherty zone at the top and 55 to 80' of buff, weathered, calcareous chert at the base. The intervening section is white crystalline lime and the entire Devonian, except where it is truncated, is overlain by Woodford shale. The porosity development in the upper cherty Dolomite is from interstitial and fractured porosity; where best developed, the lower weathered chert is relatively homogeneous containing secondary solution drive. The average porosity for the section is approximately 13 percent, with an average permeability of 40 millidarcys. Water is encountered in the Devonian only along the edge wells in which the top of the Devonian has dipped down below the -5300'. A few wells located close to the fault have produced water from slightly higher points. Of the 15 wells which have obtained formation fluid by testing the Devonian in the New Mexico area, only one, the Texas Penny Federal, has been low enough structurally to produce formation water. This is the extreme South end and there is

a possibility of faulting on the Southwest side of that area.

It is believed that the water level in the Texas and New Mexico fields are both approximately 5300' subsea. Along the line of cross-section, each location in the Texas area supports a Devonian producing well. The off-set on the New Mexico side, the Gulf 16-E Leonard, has penetrated the Devonian and drill stem tested it but has not yet been completed. Each of the next two wells to the West, along the line of cross-section, have recovered encouraging amounts of oil and gas-cut mud, and the third well, the Skelly-New Mexico 2-J, flowed 51 bbls. of oil in two hours on a drill stem test. While the next two wells did not test the Devonian, the Westernmost well from the line of cross-section, the Elliott Federal 1-H, recovered 315' of heavy oil and gas-cut mud on two hour test and the South off-set to this well has recently been completed in the Devonian.

Q So you feel that there is continuity of the oil column in this reservoir extending from Texas into New Mexico and vice versa?

A Yes, sir.

Q Now, your cross-section does not indicate continuity in the oil column in the Silurian and in the Ellenberger, is that your interpretation?

A Yes, sir. As previously mentioned, the Silurian and Ellenberger production in Texas is limited to these four sections along the West side of the field. The formation dips below

the established water level before reaching the producing area in New Mexico.

Q So there is a saddle in between these two producing reservoirs which separates the oil column?

A That's correct.

Q In the respective States?

A In both the two lower pays, the top of the formation dips below the water level, which in these two reservoirs is the field limit, the intersection of the water level and the top of the formation.

Q For the record, you might give what information you have concerning the properties of the Silurian reservoir and also the Ellenberger.

A The Silurian reservoir is often referred to as the Fusselman in this area. It contains 59 producers in Texas and four in New Mexico. Contours on top of the Fusselman formation reflect this dip into the water level. Control in the Fusselman extends to a point approximately one mile ---

COMMISSIONER THOMPSON: Will you stop just a minute? Just at this point, let the record show in the beginning of the hearing that the movement of the hearing room from the City Hall to the Courthouse, there was some confusion, of course; let the record show that Mr. Shepard, the Land Commissioner of the State of New Mexico and a Member of the Conservation Commission is sitting with Mr. Spurrier and myself, and also at this

point at the beginning of the record, let it show that the Governor of New Mexico on yesterday by telephone through his secretary expressed his concern over this meeting and his interest in it and said that his two colleagues would be here in attendance. Also, let the record show that the Chairman of our Commission is engaged in an important piece of business today and expressed his regret at not being able to come, and Mr. Murray, the other Commissioner of the Texas Commission, is conducting a hearing in Austin.

You may proceed. Excuse me for the interruption.

A In the Silurian reservoir, the structural control has some dip below the water level. However, there is a gap from a mile to a mile and a-half between control points on the two sides of the line. This is shown by the wells in the cross-section not penetrated down to the Fusselman level. The Fusselman or Silurian is a white to light-colored medium crystalline lime, grading down to the Dolomite; approximately 300 to 350' maximum thickness in the porous section is encountered. Both porosity and permeability are rather uniform throughout the section; however, some tightening of porosity near the top of the section is indicated along the North flank of the structure. However, because of the active water encroachment along the flanks of the structure, it is believed that porosity development is good in the section. The average porosity for the Silurian is 5.8 percent, with an

average permeability of 9 millidarcys. Water saturation has not been determined. Although a few tests as low as -5550 in the Dollarhide Texas Field have shown no water, an initial water level of -5520 has been rather well established for the field. In the West Dollarhide area, five wells have been completed in the Fusselman. Water free recompletions have been made as low as -5601; whereas, four wells have shown water to be above -5644. It is believed that the water level in the West Dollarhide area is between these depths of -5601 and -5640, which would place the water table 80 to 120' lower than the Texas producing area. This has been shown on the cross-section by the bottom of the Silurian pay in New Mexico being located approximately 100' lower than the Texas area. In the Texas area, there is 525' below the water level.

Q What about the base of your water in the Silurian, does it have a common base in Texas and New Mexico, or do you know?

A You mean how far the porosity will extend into the section?

Q Yes.

A The base of the water would probably be the base of the porosity. There is 300 to 350' of porosity in the Silurian-Fusselman pay, and that is reduced by the position of the water level within that porosity.

I would like to continue with the Ellenberger. There are 45 Ellenberger producers in the Texas Dollarhide and seven in the New Mexico West Dollarhide. As in the case of the Silurian reservoir, the Ellenberger structure closely matches the

Devonian. Here again, on the base of the Devonian control, the top of the Ellenberger pay drops below the water level across the connecting saddle; this area (Indicating). The structure of the three pre-Permian pays, Devonian, Silurian and Ellenberger, are very similar, faulting found in one has been carried on to the other two and it has been reflected in the shallower Permian contours, not necessarily as faults but as indentations of the contours. Although we do not have deep control across the saddle for the Silurian and Ellenberger, we feel that the Devonian control can easily be extended to the lower pay. The Ellenberger is a medium, coarsely crystalline Dolomite, containing minor amounts of chert and sand. The maximum penetration of the Dollarhide structure has been 480' in the Humble-Cowden 9-B. Vugular and fractured porosity is well-developed. The average porosity is 2.2 percent, with an average permeability of 5 millidarcys. The initial water level for the Dollarhide Texas Ellenberger reservoir has been established at -7000' and in the West Dollarhide area, satisfactory completions have been made as low as '7130', but drill stem tests show that the water level is not far below that point. The Gulf State No. 9-E, a recent Ellenberger completion through perforations down to -7115, is reportedly making a small amount of water at present. The water level of -7130 has been assumed to determine the ultimate productive limits in the West Dollarhide area.

Q Do you have anything further that you would like to add concerning the geology of these fields?

A As mentioned, there is some faulting in both areas; in the Texas area where we have control, I think we have these pretty well tied-down. In the New Mexico area, there is some rather major faulting which has not been tied-down due to the small number of wells.

COMMISSIONER THOMPSON: "Tied-down," just what do you mean by "tied-down"?

A We know it is between one well and another but we can't tell the direction in which it is running. It appears to be on the Southwest side of the New Mexico structure.

COMMISSIONER THOMPSON: I know what it means, but I want the record to clearly reflect just what you mean by "tied-down."

A However, the deep structure, the Ellenberger structure and the Silurian, together with the faults in those structures, have been reflected in the Devonian and also in the shallower Permian markers, and even though we don't have deep control, we feel that the Devonian control points are indicative.

MR. THOMPSON: That's all we have from Mr. Keener.

COMMISSIONER THOMPSON: Mr. Macey, would you like to ask the witness some questions?

MR. MACEY: No, sir.

COMMISSIONER THOMPSON: Mr. Singletary?

MR. SINGLETARY: No, sir.

COMMISSIONER THOMPSON: Mr. Spurrier?

MR. SPURRIER: No, sir.

COMMISSIONER THOMPSON: Mr. Shepard?

MR. SHEPARD: No, sir.

COMMISSIONER THOMPSON: Does anyone in the audience wish to ask a question of this witness before he is excused from the stand? Anyone?

MR. SELINGER: Yes, I'd like to.

COMMISSIONER THOMPSON: Will you tell your connection, what Company you're with?

MR. SELINGER: My name is George W. Selinger, I am with the Skelly Oil Company at Tulsa, Oklahoma.

Q (By Mr. Selinger) Mr. Keener, as I understand your testimony, it is to the effect that there is an oil continuity across the State line in the Devonian and Clearfork zones and a lack of oil continuity across the State line in the Silurian or Fusselman and Ellenberger zones, is that correct?

A For the two shallower pays, that is exactly correct. The two lower pays we have broken up without showing the oil section across the State line. There is a lack of continuity across the saddle. Exactly how far this oil section will extend up here (Indicating), or just where the reversal may be is not established. If the reversal were here (Indicating), the oil column would cross the State line.

Q But looking at your Exhibit 2, there is a lack of oil continuity from the present oil production in the Dollarhide Field

in Texas and in the West Dollarhide Field in New Mexico in the Silurian or Fusselman and Ellenberger?

A Yes, sir.

COMMISSIONER THOMPSON: Any further questions? Anyone?

Q (By Mr. Ehlers) I assume that that cross-section is true scale, am I right?

A Yes, sir, it's 500' to the inch, vertical and horizontal.

Q I couldn't tell from here but I thought that was true. Thank you.

COMMISSIONER THOMPSON: Was it prepared under your direction?

A Yes, sir.

COMMISSIONER THOMPSON: Any further questions? Anyone? Feel free.

MR. RAY: I'm Carl J. Ray with The Texas Company.

Q (By Mr. Ray) Mr. Keener, I notice your cross-section runs approximately midway, speaking of North and South area of this field, and concerning the picture on the Devonian horizon, could you tell me what the effect might be if it were run through a section -- run through the wells in the Southernmost part of the New Mexico Field?

A On the Southernmost end, there are few wells to tie to; you move one location South to get a line of wells through there. There is a suggestion of faulting and a very sharp dip down to the Southernmost area.

Q The wells I had particular reference to would be this line of wells down here (Indicating). I notice these are colored in here in the Devonian color.

A The effect of this faulting in the Southwestern part of the West Dollarhide, I don't believe has yet been established with respect to the Southernmost wells here. There is faulting with a sharp dip in between these two Southernmost wells, but the direction of that faulting in there is hopeful.

Q Is there any evidence in faulting in that area in the North-South direction?

A No. There is probably a North-South component to this fault; we haven't found anything cut through the field.

COMMISSIONER THOMPSON: Any other questions? Feel free to ask the questions. You get information free here. I take it, Mr. Thompson, there is no more questions of this witness. Thank you for your appearance and I congratulate the witness on the nice presentation.

MR. THOMPSON: We would like to call Mr. Dure as our next witness.

COMMISSIONER THOMPSON: Please be at ease and take your time.

Q (By Mr. Thompson) Mr. Dure, state your full name and by whom you are employed and in what capacity.

A My full name is Jack T. Dure, I am employed by The Pure Oil Company in the official capacity of Chief Production Engineer of the Texas Producing Division, Headquarters at Fort Worth,

Texas.

Q Are all production engineering problems of The Pure Oil Company in the Dollarhide Fields under your direction and supervision?

A Yes, sir.

Q Mr. Dure, I believe there have been several hearings before the Texas Railroad Commission in this field, is that correct?

A That's correct.

Q And the reservoir's statistical data has heretofore been introduced in the record before the Railroad Commission and has been brought down from time to time?

A That is correct.

Q Have you assembled all of the reservoir data pertaining to these reservoirs which you have and brought that right down to date?

A We have; insofar as our records permit it, we have brought it up to date.

Q That information is contained in Pure Exhibit No. 3?

A That's correct.

MR. THOMPSON: At this time, I would like to offer in evidence Pure's Exhibits 1 and 2.

COMMISSIONER THOMPSON: Without objection, they will be received. Is there an objection from anyone? I hear none. They will be admitted and named 1 and 2 according to your own designation. Which will be No. 1?

MR. THOMPSON: They are marked.

COMMISSIONER THOMPSON: According to the marks you have on the exhibits.

MR. THOMPSON: Pure Exhibit No. 3 will consist of the reservoir statistical data concerning which Mr. Dure has just mentioned. I have here extra copies ---

Q (By Mr. Thompson) Mr. Dure, I think Mr. Keener testified that the reservoirs mentioned had been developed on the Texas side on 40 acre spacing, is that correct?

A That is correct.

Q Is it your opinion that that is a proper pattern of development for these reservoirs?

A Yes, that is our opinion. We recommend it to the Railroad Commission, that such a pattern be established.

Q And that pattern has been established by the Railroad Commission?

A It has in the three deeper fields. At the present time, there are no field rules for the Dollarhide Clearfork.

Q There never have been any for the Clearfork reservoir?

A No, sir, it is operated under Statewide rules.

Q But it has been developed on 40 acre spacing?

A That's right.

COMMISSIONER THOMPSON: One well to 40?

A One well to 40.

Q (By Mr. Thompson) And under the same rules that pertain to the other three reservoirs?

A That is correct.

Q Do you think that it would be well to make the rules that pertain to the other reservoirs applicable to the Clearfork reservoir?

A Yes, I do.

Q Do you so recommend that the Railroad Commission of Texas do that?

A That would be our recommendation, yes.

COMMISSIONER THOMPSON: And why?

A We have, in observing the field performance, observed pressure communication throughout the field and on that basis believe that one well can adequately and properly drain 40 acres.

COMMISSIONER THOMPSON: It is your testimony as a petroleum engineer with the experience that you have had in this field that one well will adequately drain 40 acres?

A That is correct.

COMMISSIONER THOMPSON: And that you recommend to this Commission that one to 40 be adopted as the rule?

A I do.

COMMISSIONER THOMPSON: Proceed.

Q (By Mr. Thompson) Mr. Dure, what type of energy do you have in this Clearfork reservoir which brings the oil out of the ground?

A The Clearfork reservoir -- let's correct that, the oil found in the Clearfork reservoir initially was undersaturated. To

the present date, this field has produced under a solution gas drive mechanism and various calculations on the field as a whole have indicated that there is no entry of extraneous fluids into the reservoir that we can determine at the present time.

Q That, then, would be -- what would you call that, a gas expansion?

A Solution gas drive.

Q Solution gas drive field. No water drive?

A We have been able to determine no water drive.

COMMISSIONER THOMPSON: Would you say no active water drive?

A No active water drive, and to further bear that out, several of the wells have produced small amounts of water on initial completion. After a period of twelve to eighteen months of additional production history on that particular well, it is still producing water but in a lesser amount than it did when it was first completed.

COMMISSIONER THOMPSON: Which would lead you to believe what?

A It would lead me to believe that it is connate water that was laid down in the formation when the formation was laid down.

COMMISSIONER THOMPSON: If you had a hydrostatic drive, what would be the ---

A I would expect the water to show increases, particularly in those wells that are positioned low structurally.

COMMISSIONER THOMPSON: That would be the natural phenomenon?

A That would be the natural phenomenon. We have not had that occurrence.

COMMISSIONER THOMPSON: Go ahead.

Q (By Mr. Thompson) What about the Devonian reservoir?

A The Devonian reservoir is producing under the same type of mechanism that we have found in the Clearfork; namely, solution gas drive.

Q And you have found no active water drive?

A We have found that the water production, there were a few wells completed initially producing water; these wells have shown no increase in water production. There have been a few traces of water shown up over the field but none of them have ever increased appreciably. Also, I might add that calculations on the reservoir as regards withdrawals and pressure relationships also indicate the absence of the influx of extraneous fluids into the reservoir.

Q Mr. Dure, have the operators on the Texas side of the field established any procedure for taking pressures in any of these reservoirs and do you have any type of an engineering group that discusses the reservoir engineering problems in these fields?

A In the Dollarhide Field, the Reservoir Engineering Committee was established by the operators for the purpose of making possible interchange of information. Also, the operators in

the Dollarhide Fields have in the early days conducted quarterly bottom-hole pressure surveys; for the last couple of years, have cut that down to semi-annual surveys in each of the four producing horizons.

COMMISSIONER THOMPSON: And have you had those meetings and had this interchange of information?

A We have interchanged the information.

COMMISSIONER THOMPSON: You did not have the meetings, you simply swapped the information?

A It was simply a case of a mechanism whereby we made our information available to the other operators and vice versa.

COMMISSIONER THOMPSON: And did the other operators make their information available to you?

A Yes, sir.

COMMISSIONER THOMPSON: And did you use it? Did you read it?

A We have used it in our own work in keeping track of the performance of the reservoir.

COMMISSIONER THOMPSON: You said you had the mechanism, but did you actually ---

A It has been an operating mechanism.

COMMISSIONER THOMPSON: That's what I'm trying to develop.

Q (By Mr. Thompson) Has that exchange of information been going on since this field was brought in?

A Yes, sir. I believe that Committee was established, oh,

roughly, six or seven months after the initial well was completed.

Q Did the Railroad Commission of Texas rules require pressure surveys in these reservoirs?

A They do not.

Q But they have been taken by the operators quarterly?

A Quarterly in the initial -- in the early stages of development of the field; they are now being taken semi-annually.

COMMISSIONER THOMPSON: Reading through this data, if you will pardon me a second, Mr. Thompson, I find here on Page 6, "Early pressure history in the Devonian was erratic."

A That's true.

COMMISSIONER THOMPSON: "Later drilling showed this pay to be faulted, accounting for this early inconsistency in pressure history."

A That is true. In the extreme South end of the field, there is a Northeast-Southwest fault, forming a South fault segment in the Devonian reservoir. I might say that all initial -- all early completions in the Devonian horizon were made in that particular section and it was after it was developed, the deeper horizons were discovered to the North and development to the North showed that the Devonian was productive but very little production occurred from that section as the wells were completed in the deeper horizons.

COMMISSIONER THOMPSON: That's all I had, Mr.

Thompson.

Q (By Mr. Thompson) Do you think that it would be well to have a Commission requirement making it mandatory that the operators take periodic bottom-hole pressure surveys in this field?

A I think it would be desirable to have the information. We have been taking it, and in view of the fact that the field has moved across the State line and we have two Commissions involved in it, it would be my thought that it would be well to have it set up as a provision that these pressures be taken.

COMMISSIONER THOMPSON: How often would you suggest?

A Semi-annually.

COMMISSIONER THOMPSON: What dates would you suggest?

A At the present time, we are using the months of April and October.

COMMISSIONER THOMPSON: You find those months convenient?

A We found them convenient until our gasoline plant got going. We are seriously considering changing to May and November.

COMMISSIONER THOMPSON: You recommend that semi-annual tests be required and made when?

A May and November.

COMMISSIONER THOMPSON: That would be your recom-

mendation?

A That would be our recommendation.

COMMISSIONER THOMPSON: And that would be convenient to your operation?

A We would recommend that it be a key well survey.

COMMISSIONER THOMPSON: So it will inconvenience you as little as possible?

A That's correct.

COMMISSIONER THOMPSON: And still make the information available?

A Yes, sir.

COMMISSIONER THOMPSON: That's what we want, the information.

A The reason for our changing months is that the gasoline plant was running separate tests at that time.

COMMISSIONER THOMPSON: That's the reason I asked if it were convenient, so that it would not inconvenience you too much.

A That would be perfect.

Q (By Mr. Thompson) Should that survey also be made on the New Mexico portion of the field?

A It is our belief that it should.

Q In all of these reservoirs?

A In all these reservoirs.

Q You think that you can better determine by looking at these pressures whether your withdrawals are too much, too little ---

A Yes, sir.

Q By these pressures?

A That information is necessary to make any study in an effort to determine the proper nature of the withdrawal rate.

Q Is it your opinion that your withdrawals from the Texas portion of the Clearfork reservoir will affect the pressures in the New Mexico portion of the Clearfork reservoir?

A I do.

Q Is it also your opinion that the same thing prevails with respect to the Devonian reservoir?

A I do.

Q Do you have any opinion concerning the Silurian and Ellenberger reservoirs?

A I think there is a possibility that the same relationship will apply there.

Q You feel that the pressure surveys should be made a requirement in both Texas and New Mexico with respect to the Silurian and Ellenberger, just like the Devonian and Clearfork?

A I do.

Q So that you can determine whether withdrawals in one area are affecting the withdrawals in another or vice versa?

A That's one necessary piece of information in making such determination.

COMMISSIONER THOMPSON: What other pieces of information are necessary to make a determination?

A The other pieces of information, we have parts of them here,

the standpoint of geological structure, the continuation of the pay horizon and the pressure information that will either tend to confirm or deny that relationship that you've been able to determine from your geological work.

COMMISSIONER THOMPSON: To know what is going on all over the field?

A That is correct.

Q (By Mr. Thompson) Back to your Clearfork reservoir, are the allowables in Texas different from the allowables in New Mexico?

A Yes, sir.

Q Do you feel that that should or should not continue?

A No, sir, I believe that they should be the same.

COMMISSIONER THOMPSON: Some are higher and some are lower on both sides?

A Right.

COMMISSIONER THOMPSON: Do you think they should be the same?

A I think they should be equalized, treated as one field.

COMMISSIONER THOMPSON: As a reservoir?

A As a reservoir, yes, sir.

Q (By Mr. Thompson) What about the Devonian?

A The same thing applies there.

Q Withdrawals there should be the same?

A Yes, sir.

Q And you state that you don't have sufficient information at hand to make a determination with respect to the Silurian and

Ellenberger?

A As I stated, I think, a moment ago, if there is a possibility that withdrawals in one would affect the other, I don't think there is sufficient information at the present time to determine that.

COMMISSIONER THOMPSON: But in order to play safe, if you had the same rules on both sides as though it were all in one State -- the fact that the State line runs through it doesn't have anything to do with the reservoir?

A It doesn't have anything to do with the reservoir, no, sir.

COMMISSIONER THOMPSON: Go ahead.

A As I stated before, we think there is a possibility that withdrawals from one would affect the ---

COMMISSIONER THOMPSON: If they were the same rules, that would take care of that?

A If they were treated the same, that would eliminate any possibility. At the present time, we can't say definitely that that condition exists.

COMMISSIONER THOMPSON: Ain't nobody been down there, they don't know for sure.

A That's correct, we haven't been there by proxy.

Q (By Mr. Thompson) Did you testify that the allowables were or were not the same in Texas and New Mexico with respect to the Devonian reservoir?

A I said they were different.

COMMISSIONER THOMPSON: Well, I said there was some higher and some lower in both States. We don't want any imputations or inferences made that anybody is beating the other.

Q (By Mr. Thompson) Mr. Dure, the information contained in our Exhibit No. 3 correctly reflects what it purports to reflect and it is accurate?

A Insofar as we have been able to make it.

COMMISSIONER THOMPSON: Was it prepared under your direction?

A Yes, sir, it was.

COMMISSIONER THOMPSON: Did you help in the preparation?

A In parts of it, yes, sir.

MR. THOMPSON: We will offer as our Exhibit No. 3 the reservoir statistical data.

COMMISSIONER THOMPSON: Without objection, they will be received. Is there objection to the data? He has testified they are just as written down here. I hear no objection. They will be admitted as numbered, by both Commissions.

MR. THOMPSON: That's all the testimony we have of Mr. Dure.

COMMISSIONER THOMPSON: You have a question, Mr. Singletary?

Q (By Mr. Singletary) This question has to do with the Ellen-

berger and Silurian transcript, principally. Last year, it was testified in our MER hearings that both these reservoirs had good water drives.

A That's correct.

Q Even though they do not connect at this time across the State line, don't you think it would be advantageous in these two reservoirs that the withdrawal rates be the same?

A Provided the water table is continuous under them, yes, sir.

Q You think that it is a continuous ---

A I think it is a strong possibility, yes, sir.

COMMISSIONER THOMPSON: You would recommend that identical allowables be given?

A We have recommended that pressures be required in order that we can determine that relationship.

COMMISSIONER THOMPSON: And use those pressures for that determination?

A Yes, sir, for that determination.

COMMISSIONER THOMPSON: That's the point he was making. Any other questions?

MR. SHEPARD: Your wells in the Dollarhide pool should be treated as one pool?

A You mean each of the individual pay horizons?

MR. SHEPARD: Yes, on each side of the line.

A On the two upper ones, we are recommending that they be treated as one pool.

MR. SHEPARD: What proration would you recommend for the entire pool?

A Our recommendation today has been that they be equalized.

MR. SHEPARD: But what proration?

A We have recommended in the Dollarhide side that the MER in the Clearfork be set at 92 bbls. -- the daily allowable be set at 92 bbls. per day. We have also recommended previously to the Texas Railroad Commission that the allowable in the Devonian be set at 100 bbls. per day andwe can only judge on the basis of the performance history we have in the Texas side, and on that basis that has been our recommendation, and we're not -- we don't -- we have no basis on which to recommend the change today.

MR. SHEPARD: You are recommending one to the 40 or what acreage basis?

A Our recommendation on that, and we believe it is right, is one well to each 40 acres. Of course, we have recommended to the Railroad Commission in the field rules and which have been accepted, that a tolerance be recognized.

COMMISSIONER THOMPSON: Explain what you mean by "tolerance."

A In the Texas rules, as provided, you drill one well to 40 acres but if when the last well on the lease is drilled there remains in excess of twenty acres or less, it is credited to the last well drilled on that lease.

COMMISSIONER THOMPSON: That is to obviate the necessity of drilling an extra well on twenty acres.

A That's correct, and I understand that in the New Mexico side

A That's correct.

Q And insofar as the Silurian or Fusselman and Ellenberger zones are concerned, your only recommendation is for the taking of bottom-hole pressures?

A That is correct.

Q Now, when you refer to equality of allowables with respect to the Devonian and Clearfork, do you know what the allowable is on the New Mexico side?

A In which pay?

Q Either pay, both pays?

A The allowable in the West Drinkard Dollarhide is 80 bbls. per day; in the West Dollarhide Devonian, it is 135 bbls. per day.

Q What is it on the Texas side?

A In the Clearfork, it is 91 bbls. per day and in the Devonian it is 100 bbls. per day.

Q Now, in order to get your allowables on an equality basis with New Mexico, what are you going to do about shut-downs?

A We have not made any suggestions in that relationship, Mr. Selinger.

COMMISSIONER THOMPSON: Couldn't you solve that by not having shut-downs on the Texas side?

A I think that would be an admirable solution.

COMMISSIONER THOMPSON: That would be harmony between the States , would it not? Respecting the sovereign sister States?

there are some Federal lots that have been unitized with adjoining 40's to drill and our thought would be on that that acreage would certainly be used in arriving at the allowable for that well.

COMMISSIONER THOMPSON: Give them additional allowable for the additional acreage?

A Yes, sir, I certainly do.

MR. SHEPARD: When was oil first discovered in the Dollarhide?

A In 1945, I believe in the month of June.

MR. SHEPARD: By what Company?

A Magnolia Petroleum Company in 1945.

MR. SHEPARD: How many wells are on the Texas side? Do you have that?

A Yes, sir, I have that. In the Dollarhide Clearfork pay in the Texas side there are now, according to the Railroad Commission schedule as of July 1, 1952, 82 wells; in the Devonian, there were 132; in the Silurian, there were 57; in the Ellenberger, there were 45.

COMMISSIONER THOMPSON: Anyone else have a question of this witness?

Q (By Mr. Selinger) Mr. Dure, as I understand your testimony, you are advocating -- Pure Oil Company is advocating an equality of allowables between the two State fields insofar as the Devonian and Clearfork zones are concerned, is that right?

A And would simplify administration by the two regulatory bodies.

COMMISSIONER THOMPSON: It would be fair and reasonable and equitable, would it not?

A It would, in our opinion.

COMMISSIONER THOMPSON: I am asking if it's your opinion.

A Yes, sir.

MR. SELINGER: I just wanted the record to show that.

COMMISSIONER THOMPSON: That's a very good point, Mr. Selinger, I am glad you brought it up, and we're trying to indicate our willingness to go along with our sister sovereign State.

Q (By Mr. Selinger) Insofar as the Clearfork is concerned, in the equality of allowables, you would leave the Texas Clearfork as is and you would raise the New Mexico allowable from 80 bbls. up to 92?

A Under that system, that would be the action that would have to be taken.

COMMISSIONER THOMPSON: If it were shown that that was excessive by the bottom-hole pressure decline, what would you do then?

A I think in that instance it would be necessary to petition the two bodies meeting here to again consider --

COMMISSIONER THOMPSON: Reconsider the changed conditions?

A Reconsider the changed conditions and what steps should be

taken to correct it.

Q (By Mr. Selinger) Do you know the type of Clearfork production you are getting over in the New Mexico side?

A No, I'm not well-acquainted with it. The only thing we have are drill stem tests that we have received and reports on it.

Q Do you know how many Clearfork wells there are over in the New Mexico side?

A There are two completed at the present time.

Q Do you know whether or not both of these wells can or cannot make 92 bbls.?

A I do not know. I do know that one is on the pump.

MR. SELINGER: That's all.

COMMISSIONER THOMPSON: Our experience is that through the years they are not as good later, like men, as they were when they were younger.

MR. SELINGER: But these two New Mexico wells are later wells than they are over on the Texas side.

COMMISSIONER THOMPSON: I understand. They are the younger ones. Any other questions of this witness by anyone?

MR. SHEPARD: Would you recommend that New Mexico keep the same allowables they have at this time?

A I would be a little bit at a loss as to whether or not I would be in a position to recommend to New Mexico as regards their wells. We would recommend that you consider equalization across this State line, and not having the information on those

two wells in question and lacking producing history on that area, I frankly would be at a loss as to how to make a specific recommendation considering only those wells that you have. As I have stated previously, from the drill stem test data, production pay tops and the like we have on the New Mexico area as has been developed, and a great deal of that information is on wells that went to deeper horizons, we would recommend that it be considered as one reservoir or one pool.

MR. SHEPARD: Do you recommend that we come to the Texas proration or they go to ours?

A Well, our recommendation has been on the history on the Texas allowable and we would recommend staying with it, which would be recommending going to the Texas allowable.

MR. SHEPARD: You would go to the Texas?

A Yes, sir.

MR. SHEPARD: Why shouldn't they come to us?

A Well, that --- short of having producing history information on the New Mexico side, I couldn't tell you. We do have information on the Texas side to confirm the figure that we have recommended and we do have a considerable number of wells completed there and quite a bit of producing history.

MR. SHEPARD: Well, would you be willing to bring all the information to our Commission?

A Certainly. We have a great deal of it as reflected in this report that we have handed you.

MR. SHEPARD: Of course, this is just a general question; you may answer it if you want to. Why is it that Texas -- the Companies in Texas will drill right up to the New Mexico line and, speaking as a Texan to the Mexican line, and quit; why do they do that?

A I beg your pardon, I didn't follow you there.

MR. SHEPARD: Why did they drill right up to the line and quit?

COMMISSIONER THOMPSON: Do you know why?

A Oh, I'd better --- are you referring to the fact that the West row of locations on the Texas side are the last ones drilled? Let me see if I got the question right. You are referring to the fact that the West row of wells was the last line of wells drilled?

MR. SHEPARD: Yes.

A That's what we're referring to.

MR. SHEPARD: Drilled right up to the line and then you quit?

A We drilled all of our acreage when we got to that point, as far as we are concerned.

MR. THOMPSON: You ran out of leases, is that it?

A We had no place else to drill and as one Company we have been moving gradually to the West down-structure.

MR. SHEPARD: What Company do you represent?

A I represent The Pure Oil Company.

MR. SHEPARD: You're excused, then. Is the Gulf

here or The Texas Company?

COMMISSIONER THOMPSON: Is The Texas Company here?

MR. SHEPARD: I asked the general question. Is Gulf here?

MR. SELINGER: I might explain ---

COMMISSIONER THOMPSON: He wanted Texas or Gulf.

MR. SELINGER: I want to explain to both Commissions that our Company is the only Company that has production on both sides. None of the operators in the New Mexico side have production on the Texas side and none of the Texas operators have any production on the New Mexico side except Skelly.

COMMISSIONER THOMPSON: There is a Texas Company man.

MR. RAY: We are at the present time developing properties for Devonian, Drinkard, and Queens production on the New Mexico side. We have no leases on the Texas side.

MR. SHEPARD: You might buy a few there. That still don't alter the line.

MR. RAY: Not having my lease map, I ---

COMMISSIONER THOMPSON: Gulf man?

MR. DON WALKER: I don't establish the drilling policy of the Gulf Oil Corporation, but we have three or four rigs running in that area at this time and we will drill our wells on the locations in time.

MR. SHEPARD: As I say, the Gulf has drilled right up to the line, but you still don't want to cross the New Mexico line.

MR. WALKER: We don't operate in the Texas side; we are in the New Mexico side --- Arkansas

MR. SHEPARD: You are the biggest producer in New Mexico and I am asking you why you don't cross that line. There must be some reason for it.

COMMISSIONER THOMPSON: You say you have three rigs running in New Mexico?

MR. WALKER: Three or four in that immediate area.

MR. RAY: Commissioner Shepard, I assume that this hearing is going to be recessed and to answer your particular question in regard ---

COMMISSIONER THOMPSON: Wait just a second. We will take a recess until 1:30. Be prepared to answer Mr. Shepard's question at 1:30.

AFTERNOON SESSION
1:30 O'CLOCK, P.M.,
OCTOBER 23, 1952

COMMISSIONER THOMPSON: Are we ready to proceed? Mr. Walker, you said you had three or four rigs drilling?

MR. WALKER: That's right. Several factors, of course, control our drilling policy and we are not in a position at this time to give you the reasons for not drilling or drilling. That's something that is established by many factors; namely, our budget for wild cat

development, availability of pipe and so forth.

COMMISSIONER THOMPSON: But have you drilled up to the line, drilled up to the Texas side and stopped at the New Mexico side?

MR. WALKER: We are drilling on the New Mexico side; that's the only place we have acreage in that area.

COMMISSIONER THOMPSON: You have none on the Texas side?

MR. WALKER: None on the Texas side, and as soon as we get one rig loose to complete a well, we move to another location and, as I say, I would like to have my Company furnish the Commission, if it pleases, reasons for not drilling faster or sooner.

COMMISSIONER THOMPSON: Furnish them to Mr. Shepard.

MR. WALKER: Fine.

COMMISSIONER THOMPSON: He says that satisfies him.

MR. SHEPARD: Thank you very much for your statement. That answers the question. General Thompson, you may proceed now.

COMMISSIONER THOMPSON: Does The Texas Company want to say something?

MR. WALKER: Before Mr. Dure finishes with his testimony, I have one question I would like to ask him.

Q (By Mr. Walker) The allocation formula on the Texas side, as I understand it, which you propose to apply to the Clearfork Field, is 75-25, is that right?

A The allocation formula in the Dollarhide field rules is 75-25, but -- I don't know whether I made myself clear or not -- personally, we wouldn't stand that that Order apply across the State line. We can't originally ask for 100 percent acreage in this particular instance.

Q The New Mexico allocation formula is 100 percent acreage and that is agreeable to you in the future?

A Yes, that would be agreeable to us.

COMMISSIONER THOMPSON: Which do you recommend?

A We are standing on the record that we recommend 100 percent; we would stand behind that recommendation and so make it here.

COMMISSIONER THOMPSON: Will you tell us why, 75 against 100 percent acreage? Why you favor 100 percent acreage?

A In the particular instance we are referring to here ---

COMMISSIONER THOMPSON: Dollarhide Field.

Q ---there does not exist any small tracts in the Dollarhide Field and that being the case and as it is in regular sections, our thought would be that the 100 percent acreage is a straightforward, simple means of applying it.

COMMISSIONER THOMPSON: By straightforward and simple, do you mean from a reservoir engineering standpoint, or from the economic standpoint? Management standpoint?

A From every ---

COMMISSIONER THOMPSON: You are a petroleum engineer, are you not?

A Yes, sir.

COMMISSIONER THOMPSON: Or a General Manager of the Company? Which?

A I am a petroleum engineer.

COMMISSIONER THOMPSON: You are testifying here as a petroleum engineer, as a scientist?

A As a petroleum engineer, and also as a representative of Pure Oil Company in this instance.

COMMISSIONER THOMPSON: You are taking in a lot of territory; I thought you were an engineer.

A I am, sir.

COMMISSIONER THOMPSON: You are so testifying as an engineer?

A That is correct.

COMMISSIONER THOMPSON: Will you tell me what should be done as an engineer, 100 percent acreage or 75-25? Without talking about money, now.

A All right, we'll take the money completely out of the subject.

COMMISSIONER THOMPSON: That's right, on your line of endeavor.

A In that particular instance, the reservoir -- particularly the two we're referring to are comparatively uniform in thickness, and that being the case, I firmly believe that

a straight acreage allocation plan would be equitable and would result in orderly and efficient drainage of the reservoir.

COMMISSIONER THOMPSON: I have one more question. Would that more nearly give to each owner his proportion of recovery, in proportion to his oil in place?

A Yes, sir, in the absence of small tracts.

COMMISSIONER THOMPSON: Well, what have the small tracts got to do with it? If he's got one acre, he's not entitled to more than one-one ---

A Well, I follow you. Excuse me, I put in economics, and I ---

COMMISSIONER THOMPSON: I thought you were a petroleum engineer.

A That's true.

COMMISSIONER THOMPSON: Engineers would do well to stay with their engineering and let the management come down and testify about the economics, unless you hope to be a manager, you can't do it with petroleum engineering. We're here talking about prevention of physical waste in the production of oil and/or gas.

A Yes, sir.

COMMISSIONER THOMPSON: Would you say a fellow with one acre should have one-fortieth of the man with forty acres, with the same thickness?

A With the same thickness ---

COMMISSIONER THOMPSON: Porosity and permeability?

A Porosity and permeability, his oil in place would be correctly reflected by one-fortieth.

COMMISSIONER THOMPSON: You couldn't say anything else and be true to your engineering, could you?

A That's correct.

COMMISSIONER THOMPSON: One-fortieth of forty, isn't it?

A That's correct.

COMMISSIONER THOMPSON: With the same acre per producing horizon?

A Correct.

COMMISSIONER THOMPSON: Any further questions? Anybody? Of this witness? Mr. Thompson wants his witness back.

Q (By Mr. Thompson) Mr. Dure, would the allowable of any well on the Texas side of the field be changed if you had 100 percent acreage formula in effect now as distinguished from 75-25?

A Yes, sir.

Q It would?

A It would be a very small change, but there would be a slight change.

COMMISSIONER THOMPSON: What would be that small change and whose acreage?

A The Pure Oil Company would suffer that change and they would lose approximately one-fortieth of the allowable on about 16 wells.

COMMISSIONER THOMPSON: What Company do you work for?

A The Pure Oil Company.

COMMISSIONER THOMPSON: And you are willing to punish your Company in order to be fair?

A Yes, sir.

COMMISSIONER THOMPSON: That's the way to be an engineer. Any further questions by anybody?

Q (By Mr. Ray) Mr. Dure, as I understand your recommendation, you have recommended that the MER established in Texas be applied to these reservoirs in the Clearfork and Devonian?

A That is correct.

Q And you have recommended the elimination of shut-down days for the Texas side?

A Yes, sir, I believe, as I stated, it would be a very equitable way to handle it.

COMMISSIONER THOMPSON: Unless you have shut-downs in New Mexico of an equal number?

A It would do the same thing.

COMMISSIONER THOMPSON: You could do that just as well?

A It could be done just as well.

COMMISSIONER THOMPSON: All you want to do is see that everybody gets a fair play.

A That's correct.

Q (By Mr. Ray) Would your Company have -- do you have any

recommendation as to how many necessary adjustments in those allowables would be made under that system?

A I beg your pardon, I don't quite follow you.

COMMISSIONER THOMPSON: How would you calculate it?

A How would you accomplish this?

COMMISSIONER THOMPSON: Calculate it.

A Calculate it?

COMMISSIONER THOMPSON: Say we run on 23 days in the next month, they run 31 days --- 30 days in November in New Mexico?

A One method of handling it would be to eliminate the shut-down days on the Texas side.

COMMISSIONER THOMPSON: Give everybody the same ---

A That's correct. The New Mexico side in that instance would have to except that portion of that field from their normal method of calculating allowables.

COMMISSIONER THOMPSON: Just make a flat allowable?

A Yes, sir.

COMMISSIONER THOMPSON: Not to exceed a maximum amount. Suppose a well can't make its allowable, how would you do that?

A It would be treated in the same way, in the manner we have treated wells with low capacities.

COMMISSIONER THOMPSON: And how would you do that?

A If its capacity is lower than the top allowable, it is only assigned its capacity.

COMMISSIONER THOMPSON: And the rest thrown back in the field to be made by other wells that can make it?

A That has not been our practice.

COMMISSIONER THOMPSON: I'm asking your recommendation.

A I wouldn't recommend it.

COMMISSIONER THOMPSON: I don't know anything about how to do this, I'm trying to find out from you.

A Yes, sir. We would recommend that they be assigned the same allowable that is assigned now to Texas wells.

COMMISSIONER THOMPSON: If they can't make it and you have an overage that does not produce, how would you handle the overage -- underage?

A Our recommendation on the underage would be that it is just lost.

COMMISSIONER THOMPSON: Just lost forever?

A Yes, sir.

COMMISSIONER THOMPSON: You give them an opportunity to make it and if they can't make it, it's just too bad. Nobody gets the benefit. Do those who can?

A No, sir.

COMMISSIONER THOMPSON: You don't throw it back and allocate it in the pool?

A No, sir.

COMMISSIONER THOMPSON: Any further questions of this witness? Mr. Selinger, don't you have a question?

MR. SELINGER: No, I have a witness.

COMMISSIONER THOMPSON: Any questions? Witness excused. Next witness?

MR. THOMPSON: General Thompson, that's all the witnesses The Pure Oil Company has to offer.

COMMISSIONER THOMPSON: Do you have any statement you wish to make?

MR. THOMPSON: Well, at the conclusion we would like to make a statement at the proper time.

COMMISSIONER THOMPSON: Who has other witnesses to offer?

MR. SELINGER: Skelly Oil Company.

COMMISSIONER THOMPSON: We are ready, Mr. Selinger. Whom do you have first? How many do you have?

MR. SELINGER: We have one now that we know so far.

Q (By Mr. Selinger) State your name.

A My name is Allen Ehlers.

Q And you are associated with what Company?

A Skelly Oil Company, Midland.

Q In what capacity?

A In the capacity of District Geologist, West Texas and New Mexico.

Q And as such, does the Skelly Oil Company operations in the Dollarhide Field of Texas and the West Dollarhide Field of New Mexico come under your direct jurisdiction?

A That's right, geologically.

Q Now, for this particular hearing, have you had occasion to make a special study of both of these areas?

A Yes, sir.

Q And you have prepared three exhibits, the first exhibit being marked Skelly Exhibit I; what is that exhibit?

A That is a structural map contoured on top of the Silurian-Fusselman producing formation. It is also essentially the top of the pay section.

Q That's a contour ---

COMMISSIONER THOMPSON: Can't you put it on the wall, so all these gentlemen can see it?

MR. SELINGER: Yes, sir.

Q (By Mr. Selinger) Now, referring to Skelly Exhibit I, that is a structure map of the contours on top of the Fusselman?

A That is correct.

Q And that indicates all of the Silurian or Fusselman wells on both sides of the State line, is that correct?

A That's right, all wells which have penetrated the Fusselman or deeper are on that map.

Q Now, Skelly Oil Company has operations in the Dollarhide Field proper in Texas and in the West Dollarhide Field in New Mexico, is that correct?

A Correct.

Q So that you have information not only on other operators' wells but detailed information on Skelly-operated wells on both sides of the State line insofar as the Silurian and

Devonian -- the Silurian and Ellenberger are concerned, is that correct?

A The same information on both sides.

Q Now, I see that you have a green line, a broken line, on both the Texas side and the New Mexico side; what does that green -- broken green line indicate?

A Speaking of Exhibit I, which is that Fusselman structural map, that's the oil-water contact, approximately; I say approximately, vertically, but horizontally on the map, practically speaking, you can say it's exact or very nearly so.

Q Now, how far apart are the nearest producing oil wells from the New Mexico side and the Texas side insofar as the Silurian or Fusselman production is concerned?

A Approximately one mile.

Q In your opinion, is it possible to get any Silurian or Fusselman production between those two water-oil contact points?

A I would say that the geologic evidence we have, which in my opinion is quite ample, it is highly improbable to have Fusselman production between those two green lines.

Q Is that information that you have available, is that based purely on theory or actual information from data on drilled wells?

A That's based on geologic data, engineering data, sample logs and electric logs, drill stem tests, cross-sections, maps, and what have you.

Q Are there any wells, either on the East side of the New Mexico portion of the Silurian or Fusselman or on the West side of the

Silurian or Fusselman production on the Texas side which indicates any limitation of production?

A Yes. First of all, on the New Mexico side, I should say we have about five wells providing us with oil-water contact data.

Q Will you name the wells insofar as, just as the section is concerned, not the name of the well, but where are the wells located, in what section?

A The most recent one is the Gulf No. 13-E, which would be in Section 4; there will be the -- I don't recall approximately -- the Northwest-Southwest -- Northwest area, that short section.

Q What other wells are there in the New Mexico side?

A One is the approximately diagonal Southwest offset well.

Q In Section 5?

A In Section 5, Southeast or Northeast.

Q Now, another well?

A The South offset to that is The Texas Company well in the Northeast -- Southeast of 5.

Q What additional wells now?

A Additional information as to the ---

Q Silurian or Fusselman?

A Silurian or Fusselman water table and possibility of production reported by the well in the Northeast-Southeast of Section 32, and again by the North offset to that, which would be the Southeast-Northeast of 32.

Q Those are the five wells you have there on the New Mexico

side?

A I didn't count them, but that --- there's another one I might add a half-mile North of that to make it six.

Q Do you have any similar instances like that on the West side of the Dollarhide Field in Texas?

A I believe we have a well in the Southeast and Northeast of Section 16. We have a North-South row of wells on the East side of Section 25 which gave us information.

Q Those four wells there?

A Four wells.

Q Now, go to what has been marked as Skelly Exhibit 2; now, what is that exhibit?

A That is a structural contour map on top of the Ellenberger formation and again, essentially it depicts the configuration on the top of the pay section.

Q How far apart are the Ellenberger producers from the Texas side and the New Mexico side, approximately?

A This -- I can't quite go -- the shortest distance is North-west-Southeast; that would be about a mile and three-quarters.

Q The dotted green line indicated on this exhibit is the water-oil contact, is that correct?

A That is the oil-water contact in the Ellenberger formation.

Q In your opinion as a geologist, is there any chance of production -- is there any possibility of Ellenberger production between those two broken green lines?

A I would say it is highly improbable.

Q Do you agree with the Pure Oil Company geologist witness, Mr. Keener, with respect to his exhibit as a continuity of the -- of the discontinuity of the Silurian or Fusselman and the Ellenberger as to its oil production?

A Yes, I would agree that there is a discontinuity.

Q Referring to Skelly Exhibit No. 3, will you explain to the two Commissions what that exhibit is?

A Exhibit 3 is a West-East electrical log cross-section. That line of cross-section, as I read it from the map -- I don't know whether you all can see it -- but the left side of the cross-section is West. I might add the Westernmost well is the Elliott-Fusselman producer and then the cross-section extends Eastward to the apex of the original Dollarhide structure in Andrews County.

Q Now, does your cross-section in a general way agree with Mr. Keener's cross-section?

A Yes, I think so. Perhaps Mr. Keener's section is a little more generalized; it's on true scale. It would be impossible to show true scale on this one because of the use of the electrical logs. One inch vertically here equals 200'; horizontally, 500, instead of a one to one ratio.

Q Now, in comparing the two exhibits, I notice that there is a great similarity of blank white space as to the Silurian and Ellenberger between the New Mexico portion and the Texas portion. Is there any thought in your idea that that white space would be filled-in with Ellenberger or Silurian producers?

A Well, in my mind there will be no Ellenberger and Fusselman oil in that space, that is, between those three lines here (Indicating), which would be right here in the cross-section (Indicating), highly improbable.

MR. SELINGER: I believe that's all we have of this witness.

COMMISSIONER THOMPSON: Any questions? Mr. Spurrier, do you have a question?

MR. SPURRIER: No.

COMMISSIONER THOMPSON: Mr. Shepard?

MR. SHEPARD: No, sir.

COMMISSIONER THOMPSON: Any questions from any party? Mr. Thompson?

Q (By Mr. Thompson) Mr. Ehlers, have the withdrawals from the Silurian and Ellenberger reservoirs in Texas had any effect on the pressures as you all found them in those two reservoirs?

MR. SELINGER: Just a minute, this man is a geologist, not an engineer.

COMMISSIONER THOMPSON: You are going to have an engineering witness?

MR. SELINGER: No, we don't ---

COMMISSIONER THOMPSON: If he happens to know through his own geological work; do you happen to know anything about the reservoir, engineering?

A No, I don't.

COMMISSIONER THOMPSON: You don't have to testify about something you're not qualified to do.

A I have enough problems trying to be a geologist without being an engineer.

COMMISSIONER THOMPSON: Unless it's in his own line. You might be a geologist and an engineer.

A I suppose as a geologist you have to assimilate some engineering, but I haven't assimilated that much.

COMMISSIONER THOMPSON: If you don't feel qualified to answer, you don't have to ---

A I don't feel qualified to answer.

COMMISSIONER THOMPSON: Have you noticed any drawdown?

A I wouldn't know.

COMMISSIONER THOMPSON: He doesn't know. Perfect answer, if you don't know.

Q (By Mr. Thompson) Mr. Ehlers, does your Company have any pressure information on its wells in New Mexico in these two reservoirs that haven't been turned in to the Engineering Committee or to the respective Commissions?

A Again, I wouldn't know; it's just another Department.

MR. THOMPSON: That's all.

COMMISSIONER THOMPSON: Doesn't that come within the purview of your employment?

A No, sir, that's out of the jurisdiction of my duties with Skelly Oil Company.

COMMISSIONER THOMPSON: He doesn't know, Mr. Thompson.

MR. THOMPSON: That's all.

COMMISSIONER THOMPSON: Any other questions? We've kept our record pretty straight by keeping the witness right on what he knows. Any question by anybody? The witness is excused. Any other witness?

MR. SELINGER: We would like to offer in evidence Skelly's Exhibits I to 3.

COMMISSIONER THOMPSON: Do I hear any objection? Without objection, they will be admitted. I hear no objection; they will be admitted in the record. Any further witnesses?

MR. SHAVER: No witnesses, but I would like to make a statement. I'm Charles Shaver, representing Humble Oil & Refining Company and I would just like for the record to show that we agree with the position and the recommendations that have been made today by The Pure Oil Company.

COMMISSIONER THOMPSON: In particular, what do you agree with?

MR. SHAVER: With the equal withdrawals from the two reservoirs that are common to both States. We feel that the Commissions should take joint action at this time to allow equal withdrawals from the Clearfork and the Devonian reservoirs that are common to both New Mexico

and Texas.

COMMISSIONER THOMPSON: How about these two lower ones?

MR. SHAVER: I don't have -- I'm not qualified to speak, but according to what my people have told me ---

COMMISSIONER THOMPSON: Which people?

MR. SHAVER: The Humble.

COMMISSIONER THOMPSON: Who told you in the Humble?

MR. SHAVER: Well, I can get an engineer up here.

COMMISSIONER THOMPSON: I just wanted to know what authority you have for speaking. Did Mr. Baker tell you?

MR. SHAVER: No, sir. We have an MER Proration Committee, of which Mr. Hubbard is a member here, and two or three other employees and it was the conclusion of that group at this time that we don't have sufficient information to determine the Silurian and the Ellenberger -- that they are continuous reservoirs.

COMMISSIONER THOMPSON: And you have no recommendation as to them?

MR. SHAVER: We have no recommendation as to them. That's the reason I confined my recommendation to the Clearfork and Devonian.

COMMISSIONER THOMPSON: How about the acreage? How much do you think it would draw down, one to 40?

MR. SHAVER: We would go along with the recommenda-

tion of Pure here on the 40 acre ---

COMMISSIONER THOMPSON: You say you go along?

MR. SHAVER: We are in agreement.

COMMISSIONER THOMPSON: You are in hearty agreement, enthusiastic agreement?

MR. SHAVER: We are in complete agreement.

COMMISSIONER THOMPSON: Why?

MR. SHAVER: Sir, I'll have to bring witnesses to support those reasons. I don't feel --

COMMISSIONER THOMPSON: You find nothing to differ with them, you mean?

MR. SHAVER: We find nothing to differ, yes, sir.

COMMISSIONER THOMPSON: I'm trying to help you.

MR. SHAVER: Thank you, sir.

COMMISSIONER THOMPSON: How about the 100 percent acreage allocation?

MR. SHAVER: We are in agreement with that, too, sir.

COMMISSIONER THOMPSON: And the extra allowable for the overage on the last tract?

MR. SHAVER: Yes, sir.

COMMISSIONER THOMPSON: What do you understand by that?

MR. SHAVER: That that -- I think as you stated this morning, that if you have twenty acres left over -- I don't think it's that high in this field -- that you would not

have to drill a well but you would be allowed to get an additional allowable for that additional acreage.

COMMISSIONER THOMPSON: Credit for that additional acreage?

MR. SHAVER: Yes, sir.

COMMISSIONER THOMPSON: Without having to drill it?

MR. SHAVER: Yes, sir.

COMMISSIONER THOMPSON: You think it would drain that acreage as effectively as 40, even though it went off at an angle?

MR. SHAVER: I don't believe I'm qualified to speak on that.

COMMISSIONER THOMPSON: I think you're right on that. Anything else you wish to say?

MR. SHAVER: No, sir. Thank you.

COMMISSIONER THOMPSON: Anyone else wish to make a statement?

MR. KEELER: E. P. Keeler, Magnolia Petroleum Company. We made a study of the field rules in effect both in New Mexico and in Texas in regard to the Dollarhide reservoirs to find wherein they differed and found out that the three principal differences were, in the case of the allowables assigned, in the case of the minimum footage requirements in regard to the location of wells, and, thirdly, in regard to the allocation formula and we have here a set of recommendations.

We will attempt to recommend a uniform set of rules that might apply to the reservoirs on both sides of the State line.

COMMISSIONER THOMPSON: Will you read them?

MR. KEELER: The first point -- they're not really detailed rules, they are certain points in regard to the rules now in effect. First, that the present status of the Silurian or Fusselman and Ellenberger reservoirs be maintained, that no changes be made whatsoever.

Second, that field rules be adopted for the Dollarhide Clearfork field in Texas identical with those in effect for the other Texas Dollarhide reservoirs with the exception that the allocation formula be changed to 100 percent acreage.

Third, that the field rules applying to the Dollarhide Devonian Field in Texas be amended to provide for a 100 percent acreage allocation formula. The attempt in both of those cases is to make the allocation formula the same as it is in New Mexico.

Fourth, in regard to the spacing of wells, I might point out that in New Mexico it is permissible to drill 330' from lease lines, whereas in Texas under the Dollarhide rules, the minimum required distance is 550', and since there would be a chance that unequal offsets might develop along the State line, our fourth point was that neither State's Regulatory Body permit future wells to be

drilled to the Clearfork or Devonian reservoirs at a distance of less than 660' from the State line. Exceptions to this rule may be granted only after a joint hearing before both Commissions. Our thought in regard to that was that once you get away from a line of wells directly along the State line, each side could keep their own rules, but at least a rule of this type would prevent, say, a 660 well already drilled in Texas being offset by a 330 well in New Mexico.

COMMISSIONER THOMPSON: To prevent drainage?

MR. KEELER: To prevent drainage across lease lines, if the allowable is the same. If one well is 330 from a lease line and its offset is 660, there would be a tendency for drainage in favor of the well that's 330 from the lease line.

COMMISSIONER THOMPSON: Couldn't that be cured by the field's drilling on 330?

MR. KEELER: That's right, but there are several wells already drilled 330 from the lease line that have not been offset in New Mexico. That's what we were thinking of.

COMMISSIONER THOMPSON: It will prevent unnecessary drilling?

MR. KEELER: Not necessarily unnecessary drilling; there would still be one well to 40 acres, but trying to keep from crowding the State line is the idea we had in

mind and prevent drainage, assuming that both have the same allowables. If they are the same distance from the line, then there would be no claim for drainage.

Fifth, that the Texas portion of the Clearfork and Devonian reservoirs be exempted from shut-down days.

COMMISSIONER THOMPSON: To conform with the New Mexico practice?

MR. KEELER: That's correct, yes, sir.

COMMISSIONER THOMPSON: How would you explain that to the other fields in Texas?

MR. KEELER: Well, I realize that the usual reason for exempting a field from shut-down days is because of producing characteristics, large volumes of water or something of that type where damage might occur, waste might occur, if the wells cannot produce every day. That would not be the case here, but it would seem to me that the fact that it is an effort to reach a compromise between the two States and since there are no shut-down days applied in New Mexico, that the problem would resolve itself to one of two solutions: Either exempt shut-down days in Texas or else in New Mexico each month, when Texas decides how many shut-down days they would have, to work out that calculation of 23-30, which would be troublesome for them.

COMMISSIONER THOMPSON: It would be better for us to meet the New Mexico schedule.

MR. KEELER: Exempt in regard to ---

COMMISSIONER THOMPSON: In regard to this field.

MR. KEELER: You mean in regard to exempting the field from shut-down days?

COMMISSIONER THOMPSON: Yes, is that what you recommend? What would you do with the next field Eastward?

MR. KEELER: The next field Eastward?

COMMISSIONER THOMPSON: Yes, another field, like Slaughter or Keystone?

MR. KEELER: Unless they cross the State line, I believe there is no necessity for that, for this reason; granted there may be other reasons, like large volumes of water production or some other reason that they might be exempt from shut-down days, but this is a peculiar reason of itself, in that it is an effort to compromise between the two Commissions.

COMMISSIONER THOMPSON: Go ahead. Any more reasons?

MR. KEELER: Six, that the top per well allowables assigned Clearfork, Devonian wells in Texas be established at 70 bbls. of oil per day for the Clearfork and 75 bbls. of oil per day for the Devonian. These recommended allowables would be approximately the same as the present calendar day allowables in effect. In other words, the recommendations that some of the other operators have made today were to continue the current allowables in Texas and exempt the field from shut-down days, which, in effect,

would be an increase in production in Texas.

COMMISSIONER THOMPSON: This barrel-wise would be the same?

MR. KEELER: This way it would be the same as you now produce under shut-down days. In other words, after looking at the reservoir performance, I would say that the ---

COMMISSIONER THOMPSON: Wouldn't that be an answer, that barrel-wise there would be no difference?

MR. KEELER: That's right. We feel that an increase would not be justified at this time. And, seventh, that the New Mexico Commission change the allowables assigned New Mexico wells in the Clearfork, or rather Drinkard in New Mexico, and Devonian reservoirs to make them identical with those assigned in Texas.

COMMISSIONER THOMPSON: I thought you were making ours identical with theirs at first.

MR. KEELER: I was from the standpoint of shut-down days. We exempt shut-down days in Texas, but insofar as the assigned allowable is concerned, their allowables are reduced to be the equivalent of Texas' under this recommendation.

COMMISSIONER THOMPSON: So both States do a little something to adjust?

MR. KEELER: That was our idea. In other words, we looked at these three basic reasons and decided that

compromise on this could be that one State would give in regard to the allocation formula, the other State would give in regard to allowables, and in respect to spacing of wells, it's sort of giving on both parts.

COMMISSIONER THOMPSON: We want to do what is right reservoir-wise, not produce more than the reservoir ought to produce, at themost efficient rate. Would that still accomplish that?

MR. KEELER: Yes, it would. We would rather not see an increase in the present calendar day rate of production in Texas. I believe those are all the recommendations we have.

COMMISSIONER THOMPSON: Anyone else? Any questions?

MR. MACEY: The present allowable in Devonian in New Mexico is 135 bbls.; would you recommend the lowest of 75 bbls.?

MR. KEELER: I did, yes, sir.

MR. MACEY: And the Drinkard from 80 to 70?

MR. KEELER: That's correct, yes, sir.

COMMISSIONER THOMPSON: Any questions? Mr. Thompson has a question.

MR. THOMPSON: Do I understand your position to be that if these two reservoirs are produced -- if the wells in these two reservoirs are produced at the rates at which the New Mexico wells are producing that waste will take place in them?

MR. KEELER: Let me put it this way, I think the answer to that question, as far as I am concerned, under primary recovery is no, that waste will not occur.

MR. THOMPSON: We're under primary recovery now.

MR. KEELER: We are now, yes, sir.

COMMISSIONER THOMPSON: That ends it then, if no waste is occurring.

MR. KEELER: I don't believe any waste would occur.

COMMISSIONER THOMPSON: He said no waste would be occurring now. We're not talking about in futuro.

MR. KEELER: May I add one thing to that, another reason? Granted that I do not believe waste will occur at those higher rates, but I would like to say that quite a bit of work has been done for the past several months on a Joint Committee of the operators in Texas trying to work out a plan of unitization and pressure maintenance for the Dollarhide Devonian reservoir.

COMMISSIONER THOMPSON: Are you losing pressure now?

MR. KEELER: The pressures are declining rapidly, yes, sir.

COMMISSIONER THOMPSON: Alarmingly?

MR. KEELER: I don't know what the definition of "alarmingly" would be.

COMMISSIONER THOMPSON: That which would cause an ordinary, prudent petroleum engineer or reservoir engineer to become alarmed.

MR. KEELER: No, sir, I'll go along with Mr. Thompson on that, that insofar as primary recovery is concerned, I think you will get just as much oil at those higher rates.

COMMISSIONER THOMPSON: At the moment?

MR. KEELER: Yes.

COMMISSIONER THOMPSON: For how long?

MR. KEELER: I think ultimately you will, under primary; in regard to pressure maintenance is what bothers me. I think you will do better ultimately under pressure maintenance. If you have a chance to start a pressure maintenance project while the pressure is at a higher level and for that reason I would like to decline -- make the rate of decline as slow as possible until such time as our studies can be completed and it is decided whether or not pressure maintenance is feasible and, if so, we can get ahead with the project.

COMMISSIONER THOMPSON: Are you seriously considering a pressure maintenance project for the Dollarhide?

MR. KEELER: I'm not on that Committee; we have a man that's here on the Committee. I do know this, the Committee has worked on it for several months. I understand they have just about now finished a report on it and the report is yet to be studied and no decision has been reached that I know of as to whether it is feasible, but certainly we have been working hard at it for several

months.

COMMISSIONER THOMPSON: We will be available any time you are ready to make your report, the two Commissions, I'm sure.

MR. KEELER: I wanted to bring that out to explain that the reason we recommend these lower allowables is not that we think waste will occur under primary, we think it might be a help in the event we go to pressure maintenance ultimately, that the additional oil to be recovered under pressure maintenance might be greater if we can keep those pressures from declining at so rapid a rate.

COMMISSIONER THOMPSON: Personally, I think that that is a very wise forward look. You want to save the pressure before it's gone?

MR. KEELER: That's right, yes, sir.

COMMISSIONER THOMPSON: It's easier to keep a person alive than it is to revive the dead, isn't it?

MR. KEELER: That's right.

COMMISSIONER THOMPSON: Any questions of this witness by anyone?

MR. WALKER: I believe Pure recommended 91 for the Clearfork and is it 92? -- whatever it is, for the Clearfork, and 100 for the Devonian?

MR. KEELER: Yes, sir.

MR. WALKER: And you feel that the 70-75 is a better

figure?

MR. KEELER: Yes, I do, both of those being exempt from shut-down.

COMMISSIONER THOMPSON: Any other questions?

MR. FRANK ELLIOTT: I would like to know if you feel that in the past four years that the Clearfork has been on production in Texas, whether you feel you have been draining oil from New Mexico, if you feel that the formation is that continuous across the line?

MR. KEELER: You're talking about the Clearfork now?

MR. ELLIOTT: Clearfork or Devonian, either one.

MR. KEELER: In regard to the Devonian, let me repeat; the question is has there actually been drainage across the line?

MR. ELLIOTT: That's right, if those wells over there that have been on production -- the discovery well was in 1945 -- that's six years, but say you've been on production four years, do you feel like you've been draining oil across the line for the past year since your wells have been on production?

MR. KEELER: I imagine there has been some drainage across the line. I understand that the first wells completed in the Devonian reservoir in New Mexico had abnormally low pressures, that is, higher than the Devonian in Texas, but lower than you would ordinarily expect in a virgin reservoir.

MR. ELLIOTT: If that is the case, for an equitable take, New Mexico operators should be allowed a lead to catch up?

MR. KEELER: In answer to that, let's suppose the State line wasn't there. Isn't it more of a problem of getting out and developing the reservoir and whether or not you get in and drill the wells? If the State line weren't there, the chances are you would wait until development came out there before you drilled anyway, and certainly if it were in the same State, you wouldn't give those late wells a special allowable. I don't see why that should be applied here, just because it's across the State line.

MR. ELLIOTT: That comes back to the question of whether they do tie up to the extent that there is drainage.

COMMISSIONER THOMPSON: Any other question of the witness? I believe that's all. Thank you very much. Anyone else wish to make a statement?

MR. UPCHURCH: My name is Claude E. Upchurch, representing Gulf. Gulf is one of the operators in the West Dollarhide Field in New Mexico. So that the record might reflect its position, we would like to concur in the recommendation made by Pure, particularly the recommending that the present 100 percent acreage allocation formula in New Mexico be retained so that units having

in excess of 40 acres acreage might get their proportionate part of the allocated allowable.

COMMISSIONER THOMPSON: You are making that recommendation for both States?

MR. UPCHURCH: We don't operate in Texas in this field.

COMMISSIONER THOMPSON: So far as your operation is concerned, you want to retain it?

MR. UPCHURCH: Yes, sir.

COMMISSIONER THOMPSON: Wouldn't it be fairness for it to be the same on the other side?

MR. UPCHURCH: Yes, sir.

COMMISSIONER THOMPSON: If you had wells over there, would your recommendation be the same?

MR. UPCHURCH: Yes, sir.

COMMISSIONER THOMPSON: On the Texas side?

MR. UPCHURCH: Yes, sir.

COMMISSIONER THOMPSON: Any questions of this gentleman? I believe Mr. Shepard wanted to know why you didn't operate in New Mexico. You said you had four rigs running?

MR. UPCHURCH: I believe that's what Mr. Walker stated, that we had three or four rigs running.

COMMISSIONER THOMPSON: Did you get any additional data during the noon hour that you wish to report?

MR. UPCHURCH: No, sir, Mr. Walker stated that we

would get that information and furnish it to the Commission in New Mexico.

MR. SHEPARD: Thank you.

COMMISSIONER THOMPSON: Anyone else have a statement?

MR. RAY: Carl Ray, for The Texas Company. Before making my statement, I would like to inquire of Commissioner Shepard whether your question as to drilling along the State line was satisfactorily answered.

MR. SHEPARD: It was. I asked a general question and I got a general answer, so thank you.

MR. RAY: For your information, Commissioner Shepard, I have prepared a plat on which The Texas Company leases in this area are colored and in reply to your question, I would like to show that we have only one lease, our Penny lease, which adjoins the State line. Our development on that lease has been from the structural high and we are proceeding down the flank of the structure. We are contemplating at the present time drilling the third well on the lease which will adjoin the State line. As you can see, there is a portion of lot acreage in that lease, and, of course, under the New Mexico regulations, unitization would be necessary before drilling could begin on that particular acreage.

COMMISSIONER THOMPSON: Do you have any further statement?

MR. RAY: Yes, sir. In regard to the allowable figures that have been recommended at this hearing, The Texas Company wishes to support the recommendation of the 92 bbl. figure for the Clearfork and the 100 bbl. figure for the Devonian. It is our understanding that these figures reflect the MER as set for these fields by the Texas Commission. We think that the recent suggestion of a cut to 70 bbls. for the Clearfork and 75 for the Devonian is unwarranted and was not supported by sufficient evidence. I think it has been shown that no damage would occur at the higher rates.

In regard to the establishment of rules for this field, we would like to make the request of both Commissions that this matter be treated as a unique situation and that the final Order, when issued, reflect the adopted rules as they pertain to a field which crosses the State line.

It is our opinion that in that manner the development of an embarrassing precedent applying to other fields in either State may be avoided.

COMMISSIONER THOMPSON: We can say then that when we bring in a field that crosses the State line, we would look at it like we did this one.

MR. RAY: I think that that would be the most satisfactory method of handling this problem.

COMMISSIONER THOMPSON: It's a Solomonian decision,

is that the idea of bringing in a Solomonian decision?

MR. RAY: There is a great deal of difference between the manner of regulating production in New Mexico as compared with Texas.

COMMISSIONER THOMPSON: Would you give any views as to which is the better?

I withdraw the question.

MR. RAY: I would answer that by -- these people that have seen the Texas regulations, we have a book about so thick (Indicating); the Statewide restrictions are this thick (Indicating), and the exceptions fill the rest of the book. New Mexico still has all theirs in one book, and the exceptions are relatively small.

COMMISSIONER THOMPSON: I think I get the point. All right. We've got too much regulations.

MR. RAY: It's a matter of different procedure, I think, General.

COMMISSIONER THOMPSON: I think what you mean is that New Mexico has some rules and fields in both States; you think here is one time that Texas would be friendly and cooperative and adopt New Mexico rules; is that the idea?

MR. RAY: I think it will be necessary for both Commissions to study this problem and there will undoubtedly be deviations from the general methods applied.

COMMISSIONER THOMPSON: You do hope that we can

arrive at a common Order, that the Order be the same on both sides?

MR. RAY: I think so.

COMMISSIONER THOMPSON: I mean common, both alike.

MR. RAY: We believe that would be in the equity -- in the interests of the operators, yes, sir.

COMMISSIONER THOMPSON: And in the interests of both States?

MR. RAY: Yes, sir.

COMMISSIONER THOMPSON: Why? Greater ultimate recovery?

MR. RAY: I think that it is in the -- the interest has already been evidenced by the fact that both States have recognized the problem by calling this hearing.

COMMISSIONER THOMPSON: We're here, aren't we?

MR. RAY: You are interested in protecting the equities in the properties that are concerned in this hearing. Will that answer your question?

COMMISSIONER THOMPSON: That answers my question perfectly. Mr. Shepard has a question.

MR. SHEPARD: Wouldn't you think it would probably be better if Texas would shut-in until New Mexico caught up?

MR. RAY: I think that there is enough information in the record that pertains to that problem.

MR. SHEPARD: Don't you think there is equity in the

question?

MR. RAY: I think there is.

COMMISSIONER THOMPSON: Do you know how many days Texas shuts-in each month?

MR. RAY: Yes, sir.

COMMISSIONER THOMPSON: How many?

MR. RAY: There will be 23 producing days -- there are 23 producing days in this month.

COMMISSIONER THOMPSON: How many days in the month?

MR. RAY: There is 31.

COMMISSIONER THOMPSON: And you subtract 23 from 31 and what do you arrive at?

MR. RAY: You have 8 days, shut-in.

COMMISSIONER THOMPSON: Have we been doing that right along?

MR. RAY: Yes, sir.

COMMISSIONER THOMPSON: Isn't that shut-in, 8 days?

MR. RAY: Yes, sir.

COMMISSIONER THOMPSON: And how many months has that been going on? Add that up.

(Laughter). Go ahead.

MR. RAY: Our point is that it will be necessary for the Commissions to meet and to form the regulations for this field.

COMMISSIONER THOMPSON: Give and take.

MR. RAY: And that, we feel, is a matter between the Commissions.

COMMISSIONER THOMPSON: We are just umpires. It isn't our oil. We're just umpires trying to do the best we can for you operators, so you must tell us when it's a ball and when it's a strike and then argue with us when we say what it is. What do you recommend we do, actually?

MR. RAY: I think that this matter can best be handled, as has been suggested, by the adoption of the Texas field of the 100 percent acreage allocation ---

COMMISSIONER THOMPSON: Spacing?

MR. RAY: The 40 acre spacing.

COMMISSIONER THOMPSON: Allowables?

MR. RAY: I think the matter of allowable is one of the points that will require arbitration between the two Commissions.

COMMISSIONER THOMPSON: Who is going to arbitrate it, the Federal Government?

MR. RAY: The two Commissions.

COMMISSIONER THOMPSON: Arbitration means somebody else do it. Give and take.

MR. RAY: There is testimony in the record from the operators on this point.

COMMISSIONER THOMPSON: We're making the record here now on which we are to make a decision. If you were to make it, how would you make it on allowable? I'm asking your counsel and advice, for both of these Commissions.

MR. RAY: Being a New Mexico operator in this area,

we are satisfied with the New Mexico allowable.

COMMISSIONER THOMPSON: You like the New Mexico allowable?

MR. RAY: We will not object to the adoption of the 92 and 100 bbl. MER suggestions that have been proposed. Of the two, we prefer the New Mexico allowable, of course.

COMMISSIONER THOMPSON: All right. Any question of this gentleman?

MR. THOMPSON: How do you feel about periodic pressure surveys?

MR. RAY: It is the policy of this Company to take periodic pressure surveys whether they are required by Commission Bodies or not.

COMMISSIONER THOMPSON: Then it would be no burden on you to take it?

MR. RAY: It would be no burden. We think it would serve an useful purpose for the tests to be made of public record.

COMMISSIONER THOMPSON: Would the months mentioned by the previous witness be convenient to you, May and November?

MR. RAY: As far as I know, they would, yes, sir.

COMMISSIONER THOMPSON: Would you let us know, would you check up and see if any other date would be more convenient?

MR. RAY: If we have another recommendation, we will submit it, yes, sir.

MR. SHEPARD: You believe, then, that adopting the New Mexico allowable would be the solution of the Dollarhide Field?

MR. RAY: The only question in my mind is that if they are adopted, that if the New Mexico allowables are adopted in this field, they would provide for a fluctuation in the oil produced from this area. If the recommendations of the Texas MER are adopted, the daily production would be the same under the provisions that have been recommended here today.

COMMISSIONER THOMPSON: You mean New Mexico would get the same amount of barrels?

MR. RAY: In either case, the same amount of barrels would be produced on each side of the line.

COMMISSIONER THOMPSON: For each 40 acres?

MR. RAY: Yes, sir. If, for example, the 100 bbl. figure is adopted, that would be 100 bbls. per day in January of 1952, for example, and in December of 1952. It would be inflexible in the total amount of oil produced except as affected by the productivity of the wells.

COMMISSIONER THOMPSON: Give everybody a chance to produce all they could?

MR. RAY: Well, no, you would have a ceiling on it.

COMMISSIONER THOMPSON: Give them a chance and op-

portunity.

MR. RAY: That's correct.

COMMISSIONER THOMPSON: Anyone have a question of this gentleman? Anybody else have a statement to make? Anyone?

MR. MASSEY: My name is H. E. Massey, District Engineer out of Hobbs, New Mexico, representing Cities Service Oil Company, or, as operators in this field, Cities Production Corporation. We happen to operate solely in the three North sections of the Dollarhide Field in Texas and no production or acreage on the New Mexico side.

Therefore, we are only interested, in my statements, concerning the Clearfork and Devonian zones. We have no production in the Silurian or Ellenberger. We will agree with Pure, after ourselves having made an engineering study of the reservoir -- we are convinced that the two upper zones, Devonian and Clearfork, are one continuous reservoir, regardless of the State line.

Therefore, we think that the allowables should be the same. We want to recommend allocation on a 100 percent acreage basis; 40 acre well spacing, and also it seems desirable that field rules should be established for the Clearfork.

We are also in agreement with taking bottom-hole pressure surveys semi-annually both in Texas and in New Mexico. The dates seem agreeable; I think it should be coordinated

with the present Dollarhide gasoline plant in regard to possible spreading of the gas load to the plant.

For allowables, I believe we will recommend that it should be 91 bbls. per day for the Clearfork, 100 bbls. per day for the Devonian. That is also on the assumption that Texas removes the effects of the producing days. That would then be, you might say, a calendar day basis. I believe that after several years of operation on the Texas side, there has been nothing to prove that the MER as established, of 91 and 100, has been wrong or false. There is no information that says we should change it. Therefore, we recommend the same, 91 and 100 bbls.

COMMISSIONER THOMPSON: Any questions?

MR. SHEPARD: No, sir.

MR. SPURRIER: No, sir.

COMMISSIONER THOMPSON: Anyone have a question? Thank you very much, sir. Anyone else have a statement to make? Anybody?

Mr. Spurrier has a telegram.

MR. SPURRIER: I have a telegram from J. E. Low, Amerada Petroleum Corporation. "Urge State line pools accept present New Mexico method of determining allowable, believing such allowables will protect correlative rights and will not result in physical waste."

COMMISSIONER THOMPSON: Signed?

MR. SPURRIER: Signed J. E. Low.

COMMISSIONER THOMPSON: This morning we gave opportunity to everyone to fill out an appearance blank. If you want your name in the record so you can prove you were here, we hav those blanks up here, if there be anyone that did not sign up this morning. We will put your name in front of the transcript; it don't cost a cent. It will show you were here by just filling out a blank, and give it to the Court Reporter. They are available.

Mr. Thompson, you have a statement?

MR. THOMPSON: I don't have anything further to say.

COMMISSIONER THOMPSON: You first said that you wanted to.

MR. THOMPSON: I did, but it might be duplication of what has been said.

COMMISSIONER THOMPSON: Anyone else wish to withdraw their statement? (Laughter) I'll correct that. Is there anyone that does not wish to make a statement?

As I have said several times, speaking for the New Mexico Commission and for the Texas Commission, we are truly and only umpires. We are not Bureaucrats. We seek to administer the law as written and not to reach out into the ether and try to hang our authority on some idealistic star in the New Deal firmament, so we will try to stay with the record and we will write an Order based

on this record.

Anyone else have anything to say? The meeting is adjourned. Thank you very much.

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HEARING ADJOURNED

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THE STATE OF TEXAS |
COUNTY OF TRAVIS |

I, Ray Pardue, Official Reporter, Oil and Gas Division, Railroad Commission of Texas, do hereby certify that the above and foregoing ninety-one pages constitute a true and correct transcript, to the best of my ability, of the testimony and proceedings heard in Midland, Texas, on October 23, 1952, pertaining to the Dollarhide Clearfork, Dollarhide Devonian, Dollarhide Ellenberger and Dollarhide Silurian Fields, Andrews County, Texas.

WITNESS MY HAND, this the 27th day of October, A. D., 1952.

R Ray Pardue

OFFICIAL REPORTER, OIL AND GAS DIVISION,
RAILROAD COMMISSION OF TEXAS.

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

TRANSCRIPT OF HEARING

CASE NO. 408

February 17, 1953

E. E. GREESON
ADA DEARNLEY
COURT REPORTERS
BOX 1302
PHONES 5-9422 AND 5-9546
ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

February 17, 1953

In the Matter of:

(Readvertised) This case, originally heard in joint session with the Railroad Commission of Texas, concerns consideration of proration methods and equalization of allowables in oil and gas pools underlying Texas and New Mexico. In this state, these are the West Dollarhide, the West Dollarhide-Devonian, West Dollarhide-Fusselman and West Dollarhide-Drinkard.

No. 408

TRANSCRIPT OF HEARING

(Notice of Publication read by MR. GRAHAM)

W I L L I A M B. M A C E Y

HAVING BEEN FIRST DULY SWORN, testified as follows:

DIRECT EXAMINATION

By MR. GRAHAM:

Q State your name and position, please.

A William B. Macy.

Q Your position?

A Chief Engineer for the New Mexico Oil Conservation Commission.

Q Mr. Macey, in your capacity as Chief Engineer, you have attended the several joint meetings of the New Mexico Oil Conservation Commission and the Texas Commission with reference to

the West Dollarhide situation?

A Yes, sir, I have.

Q What is that document, please?

A This document is a transcript of the testimony given at the joint hearing held in Midland, Texas on October 23, relative to the Dollarhide and West Dollarhide pools, four producing zones in each one of those pools, in those two sets of pools in Texas and New Mexico.

Q These documents --

A (Interrupting) These are the Exhibits that were entered into at that hearing.

Q You have, in your capacity as Chief Engineer, reviewed the testimony and the record in that matter?

A I have.

Q Will you state for the record your recommendations in the situation?

A I recommend that the allowable production in the West Dollarhide Drinkard Pool be set at 91 barrels of oil per day, and the allowable in the West Dollarhide Devonian Pool be fixed at 100 barrels per day. This is in accordance with the allowables as established by the Texas Railroad Commission for the pool area in Texas. With reference to the West Dollarhide Fusselman and West Dollarhide Ellenburger Zones, there is a possibility that we might require further information on the reservoir concerned, and I recommend that bottom hole pressure tests be taken in the month of February and August of each year for the Fusselman and the Ellenburger Zones.

Q You have attended the executive meetings of the Commission with the Texas Railroad Commission in the Governor's office recently?

A Yes, sir, I did.

Q You are familiar with the suggested order and the order now in effect, evidently in Texas?

A Yes, sir, I am.

MR. GRAHAM: No further questions.

MR. SPURRIER: Any questions of the witness? Is there any objection to the introduction of this testimony as taken in Midland? If not the witness may be excused and without objection the exhibits will be accepted. Is there any other comment in this case? If not, we will take the case under advisement and move on to case 426.

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I HEREBY CERTIFY that the foregoing and attached transcript of hearing in case No. 408, before the Oil Conservation Commission, State of New Mexico, at Santa Fe, on February 17, 1953, is a true and correct record of the same to the best of my knowledge, skill and ability.

DATED at Albuquerque, New Mexico this 24th day of February, 1953.

Ada Dearnley
REPORTER