CASE 2064: Application of ANDERSON-PRICHARD OIL CORP & AMERADA PETRO. for an extension of vertical limits of the JUSTIS-DRINKARD POOL.

Case No.

2064

Application, Transcript,
Small Exhibits, Etc.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 2064
Order No. R-1774
(NOMENCLATURE)

APPLICATION OF AMERADA PETROLEUM
CORPORATION AND AMERADA-PRICHARD
OIL CORPORATION FOR AN EXTENSION
OF THE VERTICAL LIMITS OF THE
JUSTIS-DRINKARD POOL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 7, 1960, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 3rd day of October, 1960, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicants propose that the vertical limits of the Justis-Drinkard Pool, Lea County, New Mexico, be extended 74 feet above the top of the Drinkard formation as picked by the Commission at 5858 feet in the Amerada Petroleum Corporation Ida Wimberly Well No. 5, located in the NE/4 NW/4 of Section 25, Township 25 South, Range 37 East, NMPM.

(3) That this application was necessitated by the fact that the applicants have singly completed wells which are perforated both above and below the above-described Drinkard top, and such wells are presently producing from both the interval designated as the Justis-Tubb Pool and the interval designated as the Justis-Drinkard Pool.

(4) That the evidence indicates that the Justis-Tubb and Justis-Drinkard Pools are actually one common source of supply.

The characteristics of the two zones are similar and there appears to be no impermeable barrier between them.

(5) That accordingly the Justis-Tubb Pool and the Justis-Drinkard Pool should be combined and should be designated as the Justis Tubb-Drinkard Pool.

(6) That while the Justis-Tubb Pool and the Justis-Drinkard Pool were treated as separate common sources of supply, four 40-acre tracts were developed with a well in each of said pools.

(7) That each well on these four 40-acre tracts should, for at least 18 months, continue to be assigned top unit allowable for the Justis Tubb-Drinkard Pool if it is capable of producing that amount.

IT IS THEREFORE ORDERED:

(1) That the Justis-Tubb Pool and the Justis-Drinkard Pool, both in Lea County, New Mexico, be and the same are hereby combined into one pool which is to be designated the Justis Tubb-Drinkard Pool. The 40-acre depth factor for said pool shall be 1.33.

(2) That the horizontal limits of said pool shall be as described in Appendix "A" attached hereto and made a part hereof.

(3) That the following-described wells shall each be assigned an allowable not to exceed top unit allowable for the Justis Tubb-Drinkard Pool for a period of 18 months:

Anderson-Prichard Carlson-Federal "A" Well No. 1, Unit J, Section 25

Anderson-Prichard Carlson-Federal "A" Well No. 2, Unit I, Section 25

Anderson-Prichard Carlson-Federal "A" Well No. 5, Unit I, Section 25

Anderson-Prichard Carlson-Federal "A" Well No. 6, Unit J, Section 25

Westates Carlson-Federal "B" Well No. 2, Unit P, Section 25

Westates Carlson-Federal "B" Well No. 3, Unit O, Section 25

Westates Carlson-Federal "B" Well No. 4, Unit P, Section 25

CASE No. 2064
Order No. R-1776
(NOMENCLATURE)

Westates Carlson-Federal "B" Well No. 5, Unit O, Section 25

all in Township 25 South, Range 37 East, NMPM, Lea County, New Mexico.

(4) That the provision contained in paragraph (3) above shall terminate in 12 months after the date of this order unless the affected operators show cause at public hearing why such provision should be continued in effect.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

John Burroughs

JOHN BURROUGHS, Chairman

M E Morgan

MURRAY E. MORGAN, Member

A. L. Porter, Jr.

A. L. PORTER, Jr., Member & Secretary

esr/

APPENDIX "A"

The horizontal limits of the Justis Tubb-Drinkard pool shall be that area described as follows:

[illegible] 25 SOUTH, RANGE 37 EAST, NMPM	
Section 13:	W/2
Section 14:	NE/4 NE/4, N/2 SE/4 and SW/4 SW/4
Section 23:	N/2 N/2
Section 24:	All
Section 25:	All
Section 26:	N/2 NE/4 and NW/4 NE/4
Section 36:	NE/4 NE/4 and N/2 NE/4

[illegible] 25 SOUTH, RANGE 38 EAST, NMPM		
[illegible]	[illegible]	S/2 NE/4 and NW/4 NE/4

GOVERNOR

JOHN BURROUGHS
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
MURRAY E. MORGAN
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY DIRECTOR

P. O. BOX 871
SANTA FE

Re: Case No. 2064
Order No. R-1776
Applicant:
Anderman-Prichard & Amerada Petroleum Corporation

Mr. Jason Kellahin
Kellahin & Fox
Box 1713
Santa Fe, New Mexico

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.,
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

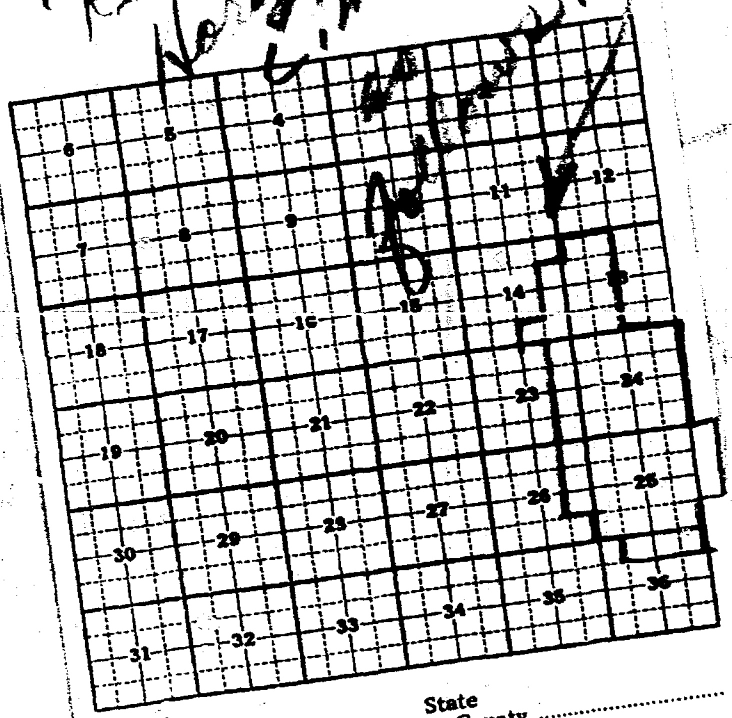
Other

Oliver Seth
Booker Kelley
Bill Kastler

Name Ph.

Address

Remarks



State or County ....

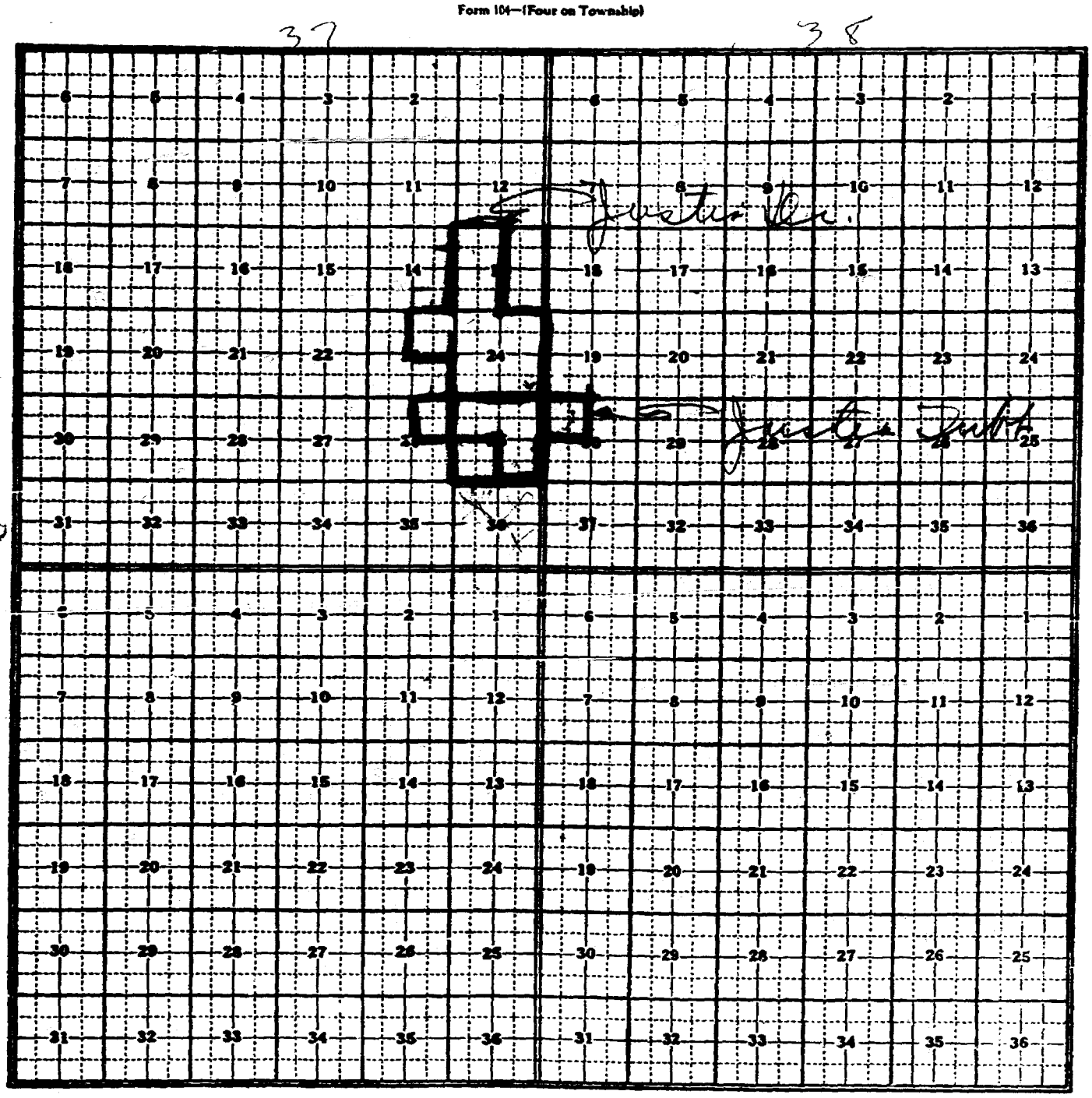
T .... R ....

County,

Township Range Township Range

Township Range Township Range

Form 104—(Four on Township)



OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 9-19-60

CASE NO. 2064 HEARING DATE 9-7-60

My recommendations for an order in the above numbered case(s) are as follows:

The Horizontal limits of the Justis-Tubb-Drinkard Pool shall be:

25S-37E

Sec. 13 - W/2,
" 23 - NE/4
" 24 - All
" 25 - N/2, SE/4
" 26 NE/4

25S-38E

Sec. 30 - NW/4

Staff Member

						① Apr. 60		⑤ May ⑥		⑦ June ⑧	
	25S-37E		① Port	②	③ all.	Prod.	all.	Prod.	all.	Prod.
Anderson-Pacific-Carlsond ed	#1A	Justis	Dr.	3-26-59	1410	870	1364	876	1320	796
J-25										
" " " "	#2-A	"	"	5-26-59	1410	870	1364	876	1320	796
I-25										
" " " "	5-A	"	Duff	11-30-59	1410	813	1364	1164	1320	1240
I-25										
" " " "	6-A	"	"	12-27-59	960	814	992	873	600	505
J-25										
Hinkston-Carlsond	2-B	"	Duff	1-7-60	1410	1408	1364	1359	1320	1315
P-25										
" "	3-B	"	Dr.	12-24-59	1410	1405	1980	1961	1320	1315
O-25										
" "	4-B	"	Dr.	4-2-60	[illegible]		616	600	1320	1284
P-25										
" "	5-B	"	Duff.	5-27-60	1410	1891	1364	1326	1320	1265

①	②		③ Apr. 60		④ May. ⑥		⑦ June ⑧		⑨ July ⑩	
S-37E	Pool		all.	Prod.	all.	Prod.	all.	Prod.	all	Prod.
rlamed cd	#1A	Justis Dr.	3-26-59 1410	870	1364	876	1320	755	1364	812
" "	#2A	" "	5-26-59 1410	870	1364	876	1320	556	1364	811
" "	5-A	" Drlg.	11-30-59 1410	813	1364	1164	1320	1144	1364	1407
" "	6-A	" "	12-27-59 960	814	992	873	600	505	620	620
[illegible]	E-B	" Drlg.	1-1-60 1410	1408	1364	1359	1320	1318	1364	1350
"	3-B	" Dr.	12-24-59 1410	1405	1980	1461	1320	1315	1364	1349
"	4-B	" Dr.	4-2-60 Fubsequent		616	600	1320	1304	1364	1344
"	6-B	" Drlg.	5-27-60 1410	1891	1364	1326	1320	1265	1364	1350

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS 7, TEXAS

August 11, 1960

[illegible] Production Company
636 Mercantile Dallas Building
Dallas, Texas

Attention: Mr. Larry [illegible]

Subject: Reservoir Fluid Study
[illegible] No. [illegible] Well
[illegible] Field
Rio Arriba County, New Mexico
Our File Number: [illegible]

Gentlemen:

Subsurface fluid samples were collected from the subject well on [illegible] 1960 by a representative of Core Laboratories, Inc. These [illegible] transported to our Dallas laboratory where reservoir fluid [illegible] [illegible].

A sample of the reservoir fluid was charged to a high [illegible] and examined during a constant composition expansion at the [illegible] temperature of 159° F. Under these conditions the saturation [illegible] measured to be [illegible] psig. The reservoir pressure [illegible] prior to sampling was 1841 psig at a depth of [illegible] was measured after a shut in period of sixty-seven hours. [illegible] good productivity index of this well and after discussions with [illegible] Production Company regarding the normal rates of flow, it is [illegible] that the samples obtained are representative of the [illegible] and that the reservoir presently exists in an undersaturated [illegible]

The remainder of the fluid study is now in progress. We [illegible] information will be adequate for your immediate needs. [illegible] questions, however, please do not hesitate to contact us.

Very truly yours,

CORE LABORATORIES, INC.
Reservoir Fluid Division

P. L. Moses
Operations Supervisor

PLM:pl
cc. - Mr. Frank Howson
Core Laboratories, Inc.
Dallas, Texas

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

(2)

Date ____________________

CASE NO. 2064 HEARING DATE ____________________

My recommendations for an order in the above numbered case(s) are as follows:

Anderson Prichard

~~Carlson~~ Fed	1A.	J	- 25 -	25S -	37E		Drinkard
"	"	2A	I	"	"	"	~~Tubb~~ "
"	"	5A	I	"	"	"	Tubb
"	"	6A	J	"	"	"	Tubb

Westates - " " Tubb

Carlson Fed	2B	P	"	"	"		Drinkard
"	"	3B	O	"	"	"	Drinkard
"	"	4B	P	"	"	"	Tubb.
"	"	5B	O	"	"		

Further that not more than one NWA shall be produced from ~~any~~ either zone on a 40 acre proration unit during the period of 1 year.

[illegible signature]

Staff Member

Memo

From
Elvis Utz
Gas Engineer

To Anderson-Prichard

1-J 3-26-59

Foss. Perfs. 5848 – 5906 DRK.
(6896 – 6950) (4 per foot

Foss. 2-I 5-25-59
(6892 – 6952) Perfs. (5868 – 5918 DRK.

5-I 11-30-59

Perfs. (5046 – 5096 BLN.
Tubb (5801 – 5942 BLN - TUBB

6-J 12-27-59

Perfs (5746 – 5774) Tubb
(5408 – 5436) BLN

Memo

From
Elvis Utz
Gas Engineer

To Westates

5-O 5-27-60

Top 5416 BLN.
Perfs 5416 – 5430; 5554; 5558;
5568 – 5570; 5575 – 5580; 5583 – 5589

Top 5628
Perfs. 5696 – 5710; 5722 – 30;
5754 – 76; 5792 – 98; 5802 – 06;
5812 – 16; 5824 – 28; 5837 – 41
Tubb

Memo

From
Elvis Utz
Gas Engineer

To Westates

2-P 10-22-59

(5004 – 5028; 5036 – 5058 BLN. Tubb.
5722 – 5742; 5755 – 5779; 5794 – 5824)

3-O 12-24-59 DRK.

5900 – 5910; 5920 – 5930; 5936 – 5942

Top 6764 No Perfs — Foss.
TD 6800

4-P 4-7-60

Top 5906
Perfs 5914 – 5918; 5922 – 5932; 5935 – 5956;
5960 – 5968 DRK

Top 6870 Foss.
Perfs. Open hole 6771 – 6895

AMERADA PETROLEUM CORPORATION
DRAWER "D"
MONUMENT, NEW MEXICO

PHONE HOBBS, N. M. — EX 3-2145

September 8, 1960

Mr. Elvis Utz
P. O. Box 871
Santa Fe, New Mexico

Dear Sir:

Pursuant to your agreement with Mr. Bushnell on September 7, 1960, please find enclosed three (3) copies each of exhibits 3 and 4 in cause No. 2064.

Yours very truly,

Philip E. Nelson

Philip E. Nelson

cc: Mr. H. D. Bushnell
Mr. R. L. Lakson
file

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF AMERADA PETROLEUM CORPORATION TO DEFINE THE VERTICAL LIMITS OF THE DRINKARD ZONE IN THE JUSTIS FIELD, LEA COUNTY, NEW MEXICO

CASE NO. 2064

APPLICATION

Amerada Petroleum Corporation, operator in said field, requests the Commission to call a hearing and to make publication of the date therefor for the purpose of defining the vertical limits of the Drinkard Zone in the Justis Field, Lea County, New Mexico.

AMERADA PETROLEUM CORPORATION

By H. D. Bushnell
H. D. Bushnell

KELLAHIN AND FOX

By Jason W. Kellahin
Jason W. Kellahin

Attorneys for Applicant

Docket Mailed Aug 24, 1960

Memo

To

From
Elvis Utz
Gas Engineer

To ANDERSON PRICHARD

1 – 3070
2 – 3070
5 – 3070 DF
6 – 3070

EL EQUATIONS

Westatatics

2- 3054
3- 3058
4- 3058
5- 3054

No. 25-60

DOCKET: EXAMINER HEARING, WEDNESDAY, SEPTEMBER 7, 1960

Oil Conservation Commission - 9 a.m., Mabry Hall, State Capitol, Santa Fe, N.M.
The following cases will be heard before Elvis A. Utz, Examiner, or Oliver E. Payne, Attorney, as alternate examiner:

CASE 2062: Application of Continental Oil Company for approval of an automatic custody transfer system to handle commingled production. Applicant, in the above-styled cause, seeks an order authorizing it to install an automatic custody transfer system to handle the production from the Weir Pool and the Cass Pool from certain wells located on that portion of the Southeast Monument Unit comprising Sections 15 and 23, Township 20 South, Range 37 East, Lea County, New Mexico.

CASE 2063: Application of Texas National Petroleum Company for a gas-oil dual completion utilizing two strings of casing. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Government Well No. 1, to be located 790 feet from the South and East lines of Section 16, Township 26 North, Range 11 West, San Juan County, New Mexico, in such a manner as to permit the production of oil from the Gallegos-Gallup Oil Pool and the production of gas from the Dakota Producing Interval through parallel strings of 2 7/8-inch tubing and 4½-inch casing respectively cemented in a common well bore. Applicant proposes to also install 2 3/8-inch tubing for the Dakota production.

CASE 2064: Application of Anderson-Prichard Oil Corporation and Amerada Petroleum Corporation for ~~an extension of~~ a redetermination of the vertical limits of the Justis-Drinkard Pool and the Justis-Fusselman Pool. Applicants, in the above-styled cause, seeks an order ~~extending~~ redetermining the vertical limits of the ~~Justis-Drinkard Pool~~, to include the perforated intervals in its Carlson "A" Well Nos. 1 and 3, located respectively in Units J and N of Section 25, Township 25 South, Range 37 East, Lea County, New Mexico, and perhaps to include additional intervals in said pool.

CASE 2065: Application of Texaco Inc. for an oil-gas dual completion utilizing two strings of casing. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its H. J. Loe Federal "B" Well No. 3, located in Unit M, Section 23, Township 29 North, Range 12 West, San Juan County, New Mexico, in such a manner as to permit the production of oil from an undesignated Gallup oil pool and the production of gas from the Dakota Producing Interval through parallel strings of 2 3/8-inch casing and 4½-inch casing respectively, cemented in a common well bore. Applicant proposes to also install tubing for the Dakota production.

CASE 2066: Application of Humble Oil & Refining Company for an oil-gas dual completion utilizing two strings of casing. Applicant, in the above-styled cause, seeks an order authorizing it to dually complete its Kathleen Steckel Well No. 1, located in the NW/4 NE/4 of Section 19, Township 18 South, Range 27 East, Eddy County, New Mexico, in such a manner as to produce oil from an undesignated Abo pool and gas from an undesignated Pennsylvanian pool through 4½-inch casing and 2 7/8-inch casing respectively cemented in a common well bore. Applicant proposes also to install tubing for the Abo production.

CASE 2067: Application of Dorfman Production Company for an oil-gas dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Elizabeth Federal Well No. 1, located in Unit H, Section 18, Township 24 North, Range 7 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of oil from the Escrito-Gallup Oil Pool and the production of gas from the Dakota Producing Interval.

CASE 2068: Application of Gulf Oil Corporation for three non-standard gas proration units in the Jalmat Gas Pool. Applicant, in the above-styled cause, seeks an order establishing the following-described non-standard gas proration units in the Jalmat Gas Pool, Lea County, New Mexico:

(1) A 320-acre unit consisting of the E/2 of Section 4, Township 22 South, Range 36 East, to be dedicated to the J. F. Janda "F" Well No. 13, located 660 feet from the South and East lines of said Section 4.

(2) A 480-acre unit consisting of the SE/4 of Section 33 and the SW/4 of Section 34, both in Township 21 South, Range 36 East and the NW/4 of Section 3, Township 22 South, Range 36 East, to be dedicated to its W. A. Ramsay "A" Well No. 1, located 330 feet from the South and West lines of said Section 34.

(3) A 160-acre unit consisting of the SW/4 of Section 4, Township 22 South, Range 36 East, to be dedicated to the J. F. Janda "F" Well No. 7, located 1980 feet from the South and West lines of said Section 4.

ig/

JASON W. KELLAHIN
ROBERT E. FOX

MAIN OFFICE OCC
1960 AUG 15 PM 3:14

KELLAHIN AND FOX
ATTORNEYS AT LAW
540 EAST SAN FRANCISCO STREET
POST OFFICE BOX 1713
SANTA FE, NEW MEXICO

TELEPHONES
YUcca 3-9396
YUcca 2-2266

August 12, 1960

Case 3064

Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Attached is the application, in triplicate, of Amerada Petroleum Corporation requesting the vertical delineation of the Drinkard zone in the Justis Pool, Lea County, New Mexico.

It is requested that the matter be set for hearing at the Commission's convenience.

Yours very truly,

Jason W. Kellahin

Jason W. Kellahin

JWK:ss
Encl.

Dorothy Mikesell

Case 2064

APCO PETROLEUM PRODUCTS

ANDERSON-PRICHARD OIL CORPORATION

LIBERTY BANK BUILDING

OKLAHOMA CITY 2, OKLAHOMA

MAIN OFFICE OCC
1960 AUG 15 AM 8:39

August 12, 1960

State of New Mexico
Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. A. L. Porter

Gentlemen:

Re: Justis Drinkard Pool
Lea County, New Mexico

Pursuant to Mr. Joe D. Ramey's letter of July 19, 1960, a copy of which is attached, we request a hearing to determine the vertical limits of the Justis Drinkard Oil Pool. It is our understanding that Amerada Petroleum Corporation is simultaneously filing a similar application. We would therefore respectfully request that these applications be set on the docket at the same time.

Yours very truly,

C. T. McClure

C. T. MC CLURE
General Attorney

Docket Mailed 8-24-1960

CTM:ps

cc: Amerada Petroleum Corporation
P. O. Box 2040
Tulsa, Oklahoma
Attention: Mr. Christie,
Production Department

GOVERNOR
JOHN BURROUGHS
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
MURRAY E. MORGAN
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY DIRECTOR

P. O. BOX 2045
HOBBS

July 19, 1960

Docket Mailed

Anderson Prichard Oil Corp.
P. O. Box 196
Midland, Texas

Gentlemen:

According to our records two of your wells in the Justis Drinkard Pool are perforated both below and above the top of the Drinkard. These wells, Carlson "A" No. 1 in Unit J of Section 25, T-25-S, R-37-E and Carlson "A" No. 3 in Unit N of Section 25, T-25-S, R-37-E, are in violation of Rule 303 of the New Mexico Oil Conservation Commission Rules and Regulations.

You are, therefore, requested to squeeze off the Drinkard zone in these wells or apply for a Hearing on this matter prior to August 15, 1960. Should you desire to apply for a Hearing, you will be allowed to produce the wells until a decision is reached from the testimony presented at the Hearing.

Yours very truly,

OIL CONSERVATION COMMISSION

Joe D. Ramey
Proration Manager

JDR/mc
cc-A. L. Porter, Jr., Director
OCC, Santa Fe

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

In the Matter of:

CASE 2064 Application of Anderson-Prichard Oil Corporation and Amerada Petroleum Corporation for an extension of the vertical limits of the Justis-Drinkard Pool. Applicants, in the above-styled cause, seeks an order extending the vertical limits of the Justis-Drinkard Pool, to include the perforated intervals in its Carlson "A" Well Nos. 1 and 3, located respectively in Units J and N of Section 25, Township 25 South, Range 37 East, Lea County, New Mexico, and perhaps to include additional intervals in said pool.

Mabry Hall
September 7, 1960

BEFORE:

Elvis A. Utz, Examiner.

TRANSCRIPT OF PROCEEDINGS

MR. UTZ: Case 2064.

MR. PAYNE: Case 2064, "Application of Anderson-Prichard Oil Corporation and Amerada Petroleum Corporation for an extension of the vertical limits of the Justis-Drinkard Pool."

MR. KELLAHIN: Jason Kellahin, Kellahin and Fox, representing the Applicant in this case, and with me is Mr. H. D. Bushnell of the Oklahoma Bar, who will present the testimony on behalf of Amerada.

MR. UTZ: Are there other appearences in this case?

I N D E X

I N D E X

MR. SETH: Oliver Seth for Tidewater.

MR. KELLY: Booker Kelly, Gilbert, White and Gilbert, Santa Fe, for Texaco, Inc.

MR. KASTLER: Bill Kastler, Roswell, New Mexico, for Gulf.

MR. UTZ: Any other appearances? You may proceed.

MR. BUSHNELL: Mr. Examiner, I would like to make a brief opening statement. The purpose of this hearing is to establish the vertical limits of the Justis-Drinkard pay section, called pursuant to application separately filed by Anderson-Prichard and Amerada Petroleum Corporation, as a result of a letter of request made by the Commission to the operators, the letter to Amerada dated July 19, 1960. Heretofore, the Commission has not issued any orders attempting to define the vertical limits of the Justis-Drinkard pay section, but it is our understanding that informally the Commission has accepted the fact that the Drinkard pay section and Tubb pay sections are separate sources, and it is further our understanding that the Commission staff have informally adopted a depth figure representing the top of the Justis-Drinkard pay section. It is Amerada's purpose and effort here today to make a pick as encountered in one of its wells at approximately seventy-four feet higher than the depth the Commission staff has informally accepted. The procedure for doing this, and I state this for the benefit of the record and also for giving the Examiner a bird's eye view of the testimony that will be given, Amerada's procedure is to pick the top of the Drinkard pay section in the Justis Pool in relation to the defined

limits of the Tubb gas field as has been defined by Commission order in a well twenty miles away, which can be correlated, the points of those locations or intervals can be correlated, we found, with the Amerada Wimberly Number 5 in the Justis Pool. Anderson-Prichard is in agreement and is in support of the proposed procedure of Amerada, and Amerada will carry forth the direct testimony, and we have one witness to be sworn in.

MR. UTZ: Will you swear the witness?

(Witness sworn in.)

RONALD L. LAKSON

a witness, called by and on behalf of the Applicant, having first been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BUSHNELL:

Q Would you state your name and the company by whom you are employed?

A Ronald L. Lakson, Amerada Petroleum Corporation.

Q And you reside in Midland, Texas, is that correct?

A Yes, sir.

Q You are the District Geologist out of Midland?

A Yes, sir.

Q And have you testified before this Commission on prior hearings as a geologist?

A Yes, sir.

(Thereupon, the document was marked as Amerada's Exhibit Number One for identification.)

Q (By Mr. Bushnell) I hand you what has been marked as Amerada's Exhibit Number One, which is a plat of the area, of the Justis area, which shows wells colored in red and green; what do those colors of the wells represent?

A The wells that are colored in green represent present Tubb production, the wells colored in red represent the Drinkard producing wells.

Q Now, this plat also is a leasehold ownership map showing the names of lessees who either own or operate the wells on the respective tracts, is that right?

A Yes, sir.

Q It also shows numerous other wells not the subject of this application which are completed in the Justis Pool and indicated opposite each well is the letter which is shown on cross reference by the --

A Legend.

Q --legend on the right hand side of the exhibit, is that right?

A Yes, sir.

Q But the wells in red and green are the only wells which we are concerned with in this application?

A Yes, sir.

Q Now, the sole purpose of this exhibit is to give the

Examiner the benefit of the number of wells which is the subject of this application, is that right?

A Yes, sir.

(Thereupon, the document was marked as Amerada's Exhibit Number Two for identification.)

Q (By Mr. Bushnell) I hand you what has been marked as Amerada's Exhibit Number Two, which is a cross section map covering north-south traverse, and referring now to the area down in the lower left hand corner of this Exhibit Two, how much area is represented there?

A There's approximately twenty-two miles between the extreme wells on the correlation traverse.

Q And that exhibit shows electric logs of five wells which have been cross referenced in this area map in the lower left hand corner?

A Yes, sir.

Q What is the name of the well to the farthest north side of this traverse?

A The well on the furthest north side, as we will note on the left of the correlation traverse, is the Humble Number 20 State "S."

Q And what is the well in the lower, lowest south location?

A The well in the lowest, the furthest south well and the extreme right well on the correlation traverse is the Amerada Number Five Wimberly.

Q And the Amerada Number 5 Wimberly is the only well represented in this exhibit that's completed in the Justis Pool, is it not, the Justis field?

A Yes, sir.

Q Now, has the--referring now to the Humble State "S" 20 Well located to the far left of this cross section, has the Commission defined the Tubb gas field as encountered in that well?

A Yes sir, the Commission has defined by Order R-464 the limits of the Tubb's pay, they have defined it as 100 feet above and 225 feet below the Tubb's marker at 5921 on said well.

Q Is that Tubb marker represented on this cross section?

A Yes sir, it is.

Q How is that designated on this exhibit?

A We labeled that as top of the Tubb.

Q OCC in parenthesis?

A Yes, sir.

Q And the Tubb markers are correlated to the Wimberly Number 5?

A Yes, sir.

Q Now, what do the areas in yellow, blue and orange purport to represent?

A The colors on the cross section represent correlative points across the correlation traverse.

Q Now, according to the present Order R-464, the base of the Tubb pay zone as encountered on the Humble well is approximately

or its present site is 2325 feet below that Tubb marker, is that correct?

A Yes, sir.

Q And what do you find the correlated mark is in the Wimberly Number 5 Well in relation to the correlated Tubb markers?

A We find by detailed correlation that the Tubb zone has thinned to the south, and in the Number 5 Wimberly, that same section is represented by 184 feet.

Q So that this exhibit shows that the Tubb zone is continuous over this range of approximately twenty-two miles, is that correct?

A Yes, sir.

Q Into the Justis Pool and that that zone is thinning out --

A Yes, sir.

Q --a little bit?

A Yes, sir.

Q Now, referring to the electric log on the Amerada Number 5 Wimberly, I see below the base of the Tubb pay zone line, also OCC in parenthesis, Drinkard 5858, what does that purport to represent?

A That is the approximate position of the Commission Staff's Drinkard point.

Q In other words, that is the point that the Commission Staff has informally accepted in the Wimberly Well as the top of the Drinkard heretofore, is that correct?

A Yes, sir.

Q Now, where are you recommending the top of the Drinkard be in the Wimberly well?

A We recommend that the top of the Drinkard pay zone be placed at 5784.

Q And what is the difference--that would represent 74 feet above the 5858 marker that the Commission has informally accepted in the Wimberly well, is that correct?

A That is correct.

Q So that you have--you are here recommending that the top of the Justis-Drinkard pay zone be at the base of the Tubb pay zone as correlated from the Humble 20 "S" Well as the Commission has defined it in that well, is that correct?

A Yes, sir.

Q Now, referring further to the electric log in the Number Five Wimberly, I note that just above the cutoff point, it is also the Abo; what does that represent?

A That represents the correlative top of the Abo in the Number 5 Wimberly.

Q And what is the depth that that line is represented on that log?

A The top of the Abo in the Amerada Number 5 Wimberly is 6153.

Q Do you recommend that the base of the Drinkard be at the top of the Abo?

A Yes, sir.

Q Is it reasonable that the Drinkard pay zone is immediately overlieing the Abo, is that a reasonable interpretation?

A Yes, sir.

Q In your opinion, is it a reasonable interpretation that the Tubb pay zone would immediately overlie the Drinkard pay zone?

A Yes, sir.

Q So that as I understand your testimony, your recommendation is here that the Commission issue an order defining the vertical limits of the Justis-Drinkard pay zone as being in that point in the Amarada Wimberly Number 5 Well, the top of which is located at 5784 feet and the base at 6153 feet as encountered in the Wimberly Well, is that correct?

A Yes, sir.

Q Were these exhibits prepared under your supervision?

A Yes, sir.

Q Is there anything further that you would like to testify as to this particular Exhibit Number 2?

A No sir, I think we have covered it.

MR. BUSHNELL: That's all the questions I have of this witness at this time.

MR. UTZ: Do you want to go ahead and offer your exhibits at this time?

MR. BUSHNELL: I will offer Exhibits 1 and 2.

MR. UTZ: Without objection, they will be entered into

the record. Any questions of the witness?

EXAMINATION BY MR. RUNYON:

Q Talking about the Drinkard top, I have two questions. As I have noted before that in the Drinkard pool itself, it is picked on a top somewhat lower than the one that you picked, I believe it is picked at the same point the Commission proposed, that we picked on the Drinkard that was mentioned before. Now, in picking this top 75 feet higher than what is used as the general top in the Drinkard pool itself, would not that create problems in that you would have a considerable amount of completions that would be affected in the Drinkard pool by that top? In other words, could you use the Drinkard top you propose and the Drinkard top that is in the Drinkard pool itself which is not quite the same, would that have some effect on completions, on the reclassifications or something in that pool?

A If the top --

MR. BUSHNELL: Do you understand the question?

A I believe I see what he is driving at.

MR. BUSHNELL: All right.

A I believe if we pick the top of the Drinkard pay zone on the Amarada Number 5 Wimberly where we propose, we will have fewer exceptions to any pay designation than any other place in the section.

Q (By Mr. Runyon) Well, of course I was referring to the Tubb and Drinkard pool, the Tubb gas pool and the Drinkard oil pool,

and in picking the top, in establishing a top of the Drinkard, would not that effect those pools, such as now in the Tubb pool, I believe, which is 225 feet below the top of the Tubb marker, there's several wells which are completed across that zone in the Tubb gas pool and as it stands now, there's a zone which has no classification, which lies under that marker from the base of the 225 feet to the Drinkard formation in that pool and I just feel that perhaps it might affect those conditions in that pool, too, even though it's a considerable distance from the one in question. I mean, you establish the top, then that top should be used in all future pools, should it not?

A It's reasonable to assume so, yes sir.

Q And the second question, in establishing that top in the Justis area, did you note how many wells it would affect that are not completed in what we call the Tubb formation, that is, between the Commission top and what you picked as the top of the Tubb?

A We have checked into that, and I believe there are only two wells that it would affect by picking it at the new point.

Q I found a few more than two in doing so from the Commission's point.

MR. NUTTER: Well, the figure I came --

Q (By Mr. Runyon) The figure I came up with, actually, we found that there would be five wells affected, which would be actually two less than the present designation.

A Our studies indicate that there would just be two wells

affected by this.

Q Of course, actually wells in the pool are wells that are classified, I mean, there's some classified as being in the pool and there are quite a few that are undesignated which have been completed just recently.

A I don't understand your question.

Q Well, like for example Gulf,Oil Corporation's Ramsey Number 8 which has just been completed recently, we find that the --

MR. UTZ: Will you give the location of the well?

MR. RUNYON: It's in Unit I of Section 36, 27, 37, you'll find that it is completed 39 feet above the top of the Drinkard formation, the basic perforation is 39 feet and the top of the perforations is 173 feet. Now, in counting we find five wells that have a similar relation to the top of the Drinkard as we have picked it.

MR. BUSHNELL: Did the witness answer his question?

MR. UTZ: I don't think he did.

MR. RUNYON: Another thing I have on that is, of course --

MR. BUSHNELL: Would you mind giving the names of these wells that you are concerned about?

MR. RUNYON: I can't say, the first one under Anderson-Prichard, Buffington "B" Number 3 D in Unit M of Section 19, 25, 37, and I have the top of the Drinkard at 5958--oh, wait a minute, the top of the Drinkard is estimated because the log did not quite follow the Drinkard at 5974, the bottom of the perforations, 59 feet

above the Drinkard, the top of the perforations 152 feet plus or minus. I do not feel that it would be plus or minus, that it would be off as much as 20 feet on an estimation. The next one is Gulf's Anderson-Ramsey NCB Number 7 in Unit J of Section 36, 25, 37, top of the Drinkard is 5904, the bottom of the perforations being 74 feet above the top of the Drinkard, the top of the perforations 127 feet, and thence to the Ramsey NCP Number 8 in Unit I, Section 36, 25, 37, top of the Drinkard at 5897, bottom of the perforations 39 feet above the top of the Drinkard, top of the perforations 173 above the top of the Drinkard. The next one, Skelley Oil Company Hobbs "A" Number 7 --

MR. BUSHNELL: Excuse me, would you give that again, please?

MR. RUNYON: The Skelley Oil Company?

MR. UTZ: The one previous to that.

MR. RUNYON: The one previous, Vincent Ramsey CTP Number 8, Unit I, Section 36, 25, 37, top of the Drinkard is 5897, bottom of the perforations 39 feet above the Drinkard, top of the perforations 173 feet above the Drinkard.

MR. BUSHNELL: Is that your fifth well? I have four.

MR. RUNYON: The last one I gave you should have been the third well, the Anderson-Prichard Buffington Number 1, Vincent Ramsey "B" and Vincent Ramsey NCP Number 8, and the next one is Skelley Hobbs "A" Number 7 in Unit D of Section 30, 25, 38, top of the Drinkard plus or minus 5964, bottom of the perforations 62

feet above, plus or minus 62 feet above the Drinkard, top of the perforations plus or minus 141 feet above the top of the Drinkard. The next one, West States Carlson D 25 Number 2 located in Unit P, Section 25, Township 25, Range 37, top of the Drinkard 5845, bottom of the perforations one foot above the top of the Drinkard, top perforation 126 feet above the top of the Drinkard. The next one, West States Carlson "B" 25 Number 5 located in Unit O of Section 25, Township 25, Range 37, top of the Drinkard 5877, bottom of the perforations 36 feet above the top of the Drinkard, top of the perforations 191 feet above the top of the Drinkard. I have those as six that would be caught in that.

MR. PAYNE: Do you agree with that, Mr. Lakson?

A No, sir.

MR. PAYNE: Would you please explain why not?

MR. BUSHNELL: Mr. Payne, I think it would help, we have a piece of work here that represents, or we have a paper here that represents some work Mr. Lakson has done, we didn't intend to put it in as an exhibit, but we will be glad to put it in as an exhibit, and furnish you copies later, with right to withdraw it and reproduce the copies, if there's no objection. I'll put this into evidence now, which I think will help explain this.

MR. PAYNE: I think it would be helpful.

MR. BUSHNELL: It will help the commission to arrive at a decision on this case.

MR. UTZ: Does this show your picks of the top of the

Drinkard on the wells that Mr. Runyon has given you?

A No, sir.

MR. UTZ: Then what would be your purpose in entering this? What does it show, in other words?

A This evidence here shows all of the perforations in the field in both the Tubb and the Drinkard as referred to the top of the Tubb point, a good correlative point. Our problem is that on Mr. Runyon's statement, I believe that his point is not correlative across the field and that is where we are running across these exceptions.

MR. UTZ: I see.

A But if we refer these perforations to a good accepted point, which is the top of the Tubb, we can see then that there will only be two and possibly three exceptions to the proposed top of the Drinkard pay.

MR. UTZ: Do you want to enter this?

MR. BUSHNELL: Would you enter that as Exhibit Number Three?

(Thereupon, the documents were marked as Amerada's Exhibits Three and Four for identification.)

Q (By Mr. Bushnell) Mr. Lakson, I hand you what has been marked as Amerada's Exhibit Number Three, which is a blown-up electric log of the Amerada Wimberly Number 5 Well, is that correct?

A Yes, sir.

Q Now, I also hand you what is marked as Amerada's Exhibit Number Four, and would you state for the record what this purports to show?

MR. UTZ: I believe he's already stated that, hasn't he, Mr. Bushnell?

Q (By Mr. Bushnell) Did you have anything further you wanted to add?

A I just wanted to explain the colors on here, the green colors representing the Tubb completions and the red colors representing the Drinkard completions.

Q Now, I wish you'd get up and come over here and show the Examiner, by correlating the two exhibits --

A We have taken the Number 5 Wimberly, and as you can see, we have referred all the perforations in the field to the top of the Tubb. Green, of course, are Tubb perforations, red are Drinkard perforations. You will see that this point is probably a point which will create the fewest exceptions. One exception is the West States 5 Carlson "B" 26, possibly the Gulf Number 7 Ramsey "B," which would be perforated about four feet, three feet below the proposed marker, and the Gulf Number 6 Ramsey, which would have a 10-foot set of perforations approximately 15 feet below the proposed --

Q Referring to Exhibit Number Four, this pencilled line, is that the correlated mark?

A The pencilled line is the same mark as on the proposed

Drinkard top of the pay as to the Number 5 Wimberly.

Q And that is the proposed top as the correlated mark in the Wimberly well, is that correct?

A Yes, sir.

Q Now, can you point, or can you determine, as shown on Exhibit Number Four, the approximate number of wells that will require exception if you used the mark that the Commission Staff has heretofore accepted in the Wimberly --

A It would be just a matter of counting them. The present Commission point is approximately 5858 on the Amerada 5 Wimberly, and lining that up here, we could count then the number of wells that go above this line, the Drinkard wells that go above this line. Do you want me to count them?

Q All right.

A It would be one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve.

Q So that your conclusion is that based on these two exhibits, particularly Exhibit Number Four, that picking a top of the Drinkard pay zone on the basis of the Commission's heretofore accepted figure would affect twelve wells, whereas picking the top on the basis of the correlated mark you have recommended heretofore in the Amerada Wimberly would affect three wells, is that correct?

A Yes, sir.

MR. BUSHNELL: That's all the questions I have.

MR. PAYNE: Mr. Lakson, from the standpoint of geology,

is it sound to have the top of one pay, or rather the bottom of one pay be the top of another pay?

A No sir, I don't believe so.

MR. PAYNE: Because then you have no impermeable barrier between the common sources of supply, is that right?

A In this case, yes sir.

MR. PAYNE: Now, assuming that we still used the present tops and operators who had perforated in intervals not so recognized had to squeeze off; would these wells then become uneconomic to operate?

A I am not qualified to answer that, sir.

MR. SKRABACZ: Are these top allowable wells that we are talking about?

MR. PAYNE: Maybe we can get to that later.

MR. SKRABACZ: I would like to help Mr. Lakson out, or just explain the economics of --

MR. UTZ: Are you going to testify a little later?

MR. SKRABACZ: No, I would like to answer that question.

MR. PAYNE: Well, we can get to that later, and have you sworn in as a witness, Mr. Skrabacz.

MR. SKRABACZ: Okay.

MR. PAYNE: Thank you, that's all.

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

EXAMINATION BY MR. NUTTER:

Q Mr. Lakson, the point which you show on your Exhibit Number

Two as the OCC top of the Drinkard at 5858, is that point correlative across this area?

A In my opinion, it is not.

Q In other words, you can't go to the logs of each well and establish where the top of the Drinkard is, determined by this same marker?

A That is correct, I cannot do it.

Q Can you establish the point that you have picked at 5784 on the logs of each of those wells, or do you have to refer back to the Tubb marker, which is a couple or three hundred feet above?

A I believe that the point that we have proposed is reasonably well correlated across the field.

Q And it can be determined in each of the logs of the wells?

A Yes sir, with detailed correlation, it can be done.

MR. NUTTER: That's all, thank you.

MR. UTZ: Are there any other questions?

MR. RUNYON: I have another one. Is that point that you picked, roughly, say correlative to what is called the top of the Drinkard in the Drinkard pool, another Drinkard pool? I am concerned with establishing the top which is already picked in other pools. Now, in the Drinkard pool, oil pool, or shall we say the Tubb pool itself, Tubb gas pool, 225 feet below the top of the Tubb, does not establish the top of the Drinkard, and the Drinkard top in itself as picked is much lower, and I find that

this point can be correlated some 20, 26 feet plus or minus to this pool, and I was just at that distance, and of course I will admit that at one point sometimes it is hard to find, but on the electric logs, or radioelectric logs, there are some problems in picking that specific point or where you have induction logs or electric logs, I admit that it is quite difficult, but what I was getting at, can you establish a point in each pool as the top of the Drinkard, and yet in another pool have a different pick for the top of the Drinkard Formation?

A We are not attempting to pick a top of the Drinkard, we are attempting to define the limits of the Drinkard pay zone.

MR. RUNYON: I misunderstood. In other words, I was under the impression that you were picking this 225 feet as the top of the Drinkard.

A No, sir.

MR. UTZ: Mr. Seth?

RECROSS EXAMINATION

BY MR. SETH:

Q Why did you pick that point as the top of the Drinkard pay zone, what is the geological reason for it?

A Because we assume that--or the top of the Tubb, I'm sorry, the base of the Tubb is the top of the Drinkard pay zone. In other words, the Tubb immediately overlies the Drinkard, and if we define the base of the Tubb pay zone, we then automatically define the top of the Drinkard pay zone.

Q If it is the bottom of the Tubb, then it is the top of the Drinkard Formation, regardless of whether it is a pay zone or not, isn't it?

A I'm staying away from referring to the top of the Drinkard or the base of the Tubb, I'm referring to it only as pay zones.

Q It is the top of the Drinkard Formation, though, is it not? Isn't that what Mr. Nutter asked you?

A No, sir.

Q The bottom of the Tubb is the top of the Drinkard, isn't it, or is there something in between?

A I don't understand what you're driving at.

Q If it is the bottom of the Tubb Formation, then it is also the top of the Drinkard, isn't it?

A Yes, sir.

Q Regardless of whether or not it is the pay zone or not?

A Yes, sir.

Q Now, is this marker or whatever you choose to call it, is that a dense zone in the formation or is it not?

A Not always; now, it's just a correlative point that we are able to carry across.

Q Now, does--where is there a dense zone in this area, to your knowledge, the center of the field at the present time, the center of the Drinkard?

A To my knowledge, there is no dense zone that is correlative over the whole field.

Q Well, is there one that's fairly well developed toward the center of the field?

A I believe I can't answer that.

Q You don't know whether there is or not, is that right?

A That's right.

Q Does your Exhibit Number Four, does that include all of the wells that Mr. Runyon inquired about, your Exhibit Four?

A I believe so; yes sir, I believe it does.

Q Does it include the 8-B, Gulf 8-B Well, do you know, would you determine whether it does or not?

A I'll have to check that. No sir, it's recently completed, 8 Gulf Ramsey is not on this chart.

Q Does it include the Anderson-Prichard 3-DB Buffington Well, Section 19?

A No sir, it's not on this chart.

Q Would fewer exceptions be created if you raised the top of the Tubb, in other words, combine the two zones?

A No sir, I believe there would be more violations.

Q Is that just an offhand opinion?

A That's just an offhand opinion, yes sir.

Q You don't know whether there would be or not, for sure?

A That's right.

Q What about wells with porosity existing across this marker that you choose to use, or the dividing line?

A What was that again?

Q What about wells that encounter porosity across this dividing line that you have recommended here, would you require, permit any further exceptions, permit perforations across this zone in the future if porosity is encountered across them?

A For wells in the future?

Q Yes, sir.

A Well, my personal opinion is no.

Q There are some, a number of undeveloped locations, are there not, in the area?

A Yes, sir.

Q It is possible in these locations that porosity will be encountered more or less continuous across the dividing line, is that not correct?

MR. BUSHNELL: Excuse me, Mr. Seth, are you asking if this witness has any objection to exceptions being granted without notice of hearing on those or --

MR. SETH: The point has apparently, as near as I can determine, this dividing line is not based on any definite geological situation, this is an arbitrary point. Now, if that's it, obviously we are going to have the possibility that future wells will have porosity across this point. Now, what would you recommend be done about future wells if this condition exists?

MR. BUSHNELL: We don't have any recommendations as to future wells. My answer to that would be that if an operator found any --

MR. SETH: No, I am asking the witness.

MR. BUSHNELL: I don't think the witness is qualified to answer that question because that's a procedural point and not a geological point.

Q (By Mr. Seth) Would you answer, if you can?

A I agree with Mr. Bushnell.

Q Does your selection of this point have any, give any consideration to the existence of water above or below it, Mr. Lakson?

A No sir, it does not.

Q No consideration to the appearance of water?

A No, sir.

Q If you should, if the Commission should move this top of the Drinkard and include stringers in existing wells that have not been perforated, would you, as a prudent operator, expect that these would have to be perforated also to protect the correlative rights?

A I am unable to answer that one also, it's a procedural question.

Q For what reason don't you understand it?

MR. BUSHNELL: He doesn't understand the correlative rights situation. I don't know that I do either.

Q (By Mr. Seth) Assume that you had a well that had a stringer which is presently above the top of the Drinkard; you move the top of the Drinkard upward to include this stringer. Would you recommend to your company that they can go in and perforate

at that stringer?

A That would depend on how long the stringer was and what the electric log showed.

Q Well, do you think this situation is likely to come about by reason of moving the dividing line upward or downward?

A I don't know.

Q You don't know whether it would or not?

A I don't know if it would or not.

Q Do you have any wells where you have stringers directly above the present dividing line?

A What kind of stringers?

Q Just a minute. Do you have a log in your Number 3 Wimberly?

A No sir, not with me.

MR. BUSHNELL: Mr. Seth, we can get one with a ten-minute recess.

MR. SETH: That's all right.

Q (By Mr. Seth) I hand you here a cross section that includes your Number 4 Wimberly, your Number 3 Wimberly; now, if the top of the Drinkard is moved upward, it will include in the Drinkard several stringers in the Number 4 Wimberly, will it not?

A You are referring to this stringer?

Q Those two, yes sir, those would be included, would they not?

A They would be included, yes sir.

Q Now, would you recommend to your management that those be perforated?

A Without detailed sample study and without evaluation of the electric log, I am unable to say so at the present time.

Q And the same question on Number Three, you have a similar problem there, do you not?

A Yes sir, the same answer.

Q Now, this problem will occur throughout the field, wouldn't you expect it to, as a geologist?

A It's just liable to, yes sir, it could happen.

Q It's --

A It's speculation.

Q Referring now to the Number 9 Wimberly, you have a similar problem there, do you not?

A Yes, sir.

Q Then you can expect it as a possibility throughout the field?

A Yes, sir.

Q That being the case, both yourself and other operators will be faced with the decision of whether or not to perforate these additional stringers?

A Yes, sir.

Q And it is also possible that a number of them will have to be perforated in accordance with your operational practices, isn't that correct?

A If the stringers are commercial, yes sir.

Q You are thereby forcing other operators by your recommendation to spend additional funds on these wells to take care of this situation which you have created, is that correct?

A If the stringers that you refer to are commercial, yes sir.

Q I would like to hand you another log and ask you if you would please pick your marker. I hand you this log here that's AB Coates "C" 23 of Tidewater, Section 24, would you pick it on this log?

A Without proper correlation and close traverse, I would be unable to. I can do it by getting my logs in here and doing it, but by just looking at this log, I am unable to do so.

Q And why is that, why is that?

A Picking the point requires detailed correlation.

Q You can't pick it from the logs by --

A Not by visual inspection, no sir.

Q Then it is nothing that occurs in the particular well bore that is indicated by either electric--by electric logs that the other operators can use to pick it then, is that right?

A No sir, I believe the point can be correlated by detailed correlation across the field.

Q But any operator from a particular well, from a particular log can't pick it, is that right?

A No, it has to be correlated, and it can be picked that way.

Q Can you give us any general, approximate location on this log, would you look at the log and see whether you can or not, have you ever seen this log before?

A I have not looked at this particular log.

Q Why do you say you can't do it if you haven't seen it?

A Because I know it requires detailed correlation to pick the point.

Q Would you look at it and see if your opinion is the same after you have looked at it?

A I cannot pick the point accurately without detailed correlation.

Q You testified that it was a correlative point throughout the field, if I understood you, and also testified that the present one is not. Now, if that is the case, why can't you pick it from the log?

A I can pick it from the log with detailed correlation; I am not able to do so by just visual examination without correlation.

Q Well, then it is not a point that's clearly correlated, or correlated with ease throughout the field?

A If you have the log, it can be correlated across the field.

Q Now --

A With detailed correlation, it can be carried across the field.

Q What do you mean by detailed correlation? Maybe I don't

understand that.

A By starting--well, for instance, if we start with the Amerada 5 Wimberly, take the log that we have used for reference and correlate adjoining logs, you arrive at the well in question, they can be correlated.

Q How far is this well, the log of which you have before you, from the Number 5 Wimberly, just approximately?

A Would you point the well on the map for me, please?

Q On Section 24, 330 feet from the south and east corner of Section 24.

A Is that a very recent completion?

Q Yes; it is were located at that point, how far is it from your well you use as a reference point, just approximately?

A It's a little over a half a mile.

Q And would it need detailed correlation study to be able to pick it, although it's that close to your --

A Yes, sir.

Q Why is that, is that an unusually difficult situation, is this an unusual situation we have or what is the reason for that?

A Well, there's no reason other than to be sure of the point, why it takes detailed correlation to do it.

MR. SETH: I think that's all we have, Mr. Examiner.

MR. UTZ: You mean by that, Mr. Lakson, that there are similar points on the individual log which actually look considerably alike, in order to differentiate between them and the proper one,

you need correlation from numerous other logs?

A Yes, sir.

MR. UTZ: Mr. Kastler?

MR. KASTLER: Bill Kastler representing Gulf. Mr. Lakson, from your studies in this matter, isn't it logical to assume that that case involved a single oil pool? In other words, have you found any evidence to suggest that the Justis-Tubb and Justis-Drinkard are in fact one oil pool?

A I have no information either way on that; I couldn't prove it, I couldn't disprove it.

MR. KASTLER: That's all.

MR. UTZ: Are there other questions?

EXAMINATION BY MR. NUTTER:

Q Mr. Lakson, in response to some questions regarding your Exhibit Four which you introduced a while ago, I think you said there were twelve wells that would be an exception if the limits were picked in the same manner as presently picked, isn't that correct?

A Yes, that's right.

Q What did you do to determine that, Mr. Lakson, you got the proposed top of the Drinkard pay marked on your exhibit, correct?

A Yes.

Q And then you came down seventy-four from that and drew a line across there?

A No sir, the OCC point on the log is as close as we can

determine from the Staff of the Commission, and we derived the 74 feet by using that point after we have established the proposed top of the Drinkard pay.

Q Yes, sir; well now, in your Wimberly Number 5, your proposed top of the Drinkard pay is 74 feet above the top of the Drinkard as picked by the OCC at the present time, correct?

A Yes, sir.

Q So you hadn't picked the top of the Drinkard pay as described by the Oil Conservation Commission on Exhibit Four, have you, but you had picked the top of the Drinkard pay as Amerada proposes it, you had it marked that way on your Exhibit Four?

A Yes, sir.

Q Well then, how did you draw that line across there to show the top of the Drinkard pas as picked by the Oil Conservation Commission a while ago when you drew the line?

A I just set it up against Exhibit Three, I believe that's the one.

Q Which is the log of what well?

A The log of the Amerada Number 5 Wimberly.

Q And then you drew the line across the --

A I did not draw a line, I just went across the existing wells there.

Q And the line 74 feet across would be identical at each one of the wells, would it not?

A Yes sir, that is true.

Q But that isn't likely to happen?

A It is not likely to happen, no sir.

Q So it would be impossible to say that there would be twelve exceptions without having the logs of each of the wells, is that correct?

A That is right, yes sir.

Q Now, would you recount the wells that crossed your dotted line that you projected and see if there are actually twelve of them? I counted them, sir, and I didn't get twelve, and I just wondered if you would recount them.

A All right, do you have the log on the Number 5 Wimberly?

Q Yes, sir.

A I still count, come up with twelve, sir.

Q Do you?

A Yes, sir.

Q Very good. Now, Mr. Lakson, I want to ask you a couple of questions regarding the characteristics of the fluid produced from the upper zone of the Tubb pool and the fluid produced from the lower zone; what are the gravities of those fluids?

A I am unable to answer that, sir.

Q Do you know anything about the GOR's of the two pools?

A No sir, I do not.

Q And you stated that as far as you knew, there wasn't any actual physical separation in the impermeable barrier line

between the two pools?

A As far as I could determine no; from any evidence that we have existing, why I was unable to determine that there was a separation between the two pools.

Q Will anyone testify for Amerada as to what the reservoir characteristics are, the bottomhole pressure, the fluid characteristics, the GOR's and such information as that?

MR. BUSHNELL: We didn't intend to put on an engineering witness, but we can if you would like us to, Mr. Nutter.

MR. NUTTER: I think that information may be pertinent to determine whether it is in fact one pool and to get the gravity and the GOR. I believe that's all; thank you, sir.

MR. RUNYON: I may not require--did you make a microlog study of the pool itself, say in relation to cosmic development, perhaps on the edge of the pool in relationship to across the pool, the high particles of the structure and the--in other words, did you make a microlog study to determine how porosity development was encountered across the pool?

A I have not made a detailed study of it, no sir, over the whole pool.

MR. RUNYON: What is the gas structure in the Tubb pool development or the oil development in relation to your structure?

A I can't answer that at the present time.

MR. UTZ: Are there other questions?

MR. PAYNE: Mr. Lakson, if the eventuality came about

that Mr. Seth mentioned, in other words, if you increase the vertical limits of the Justis-Drinkard by 74 feet, other operators find that they have stringers in that 74 feet, commercial stringers, and they perforate them, do you feel there's going to be any greater ultimate recovery from either one or both of the pools involved?

MR. BUSHNELL: I think that's another engineering question.

MR. PAYNE: I don't think so; a geologist can testify as to engineering questions and vice-versa.

MR. BUSHNELL: I'm afraid he can't, but --

A I have no opinion on that, sir.

MR. BUSHNELL: Can you answer that question, Mr. Lakson?

A I have no opinion on that question.

MR. PAYNE: Now, Mr. Lakson, are you familiar with development in both of these pools, generally?

A In general, yes sir.

MR. PAYNE: Now, the Drinkard pool, the Justis-Drinkard pool is more fully developed than the Justis-Tubb, is it not?

A Yes, sir.

MR. PAYNE: Do you think that if the vertical limits of the Justis-Drinkard were increased by 74 feet, that it might have an adverse effect on further development in the Justis-Tubb?

A I see no reason why it would.

MR. PAYNE: Well, is your main producing body actually in the Drinkard, the main pay zone of the Drinkard, is that what you

generally shoot for in this area?

A I don't understand what you're driving at.

MR. PAYNE: Well, never mind. That's all, thank you.

MR. UTZ: Are most of the wells drilled in this area drilled for the Tubb pay or the Drinkard pay?

A I am unable to say so. You have so many pays in the field that it is hard to tell which one they are going for, you have deeper horizons.

MR. PAYNE: The Tubb is essentially a number of stringers, isn't it, rather than being a main pay body like the Justis-Drinkard is?

A Yes sir, I believe so.

MR. UTZ: Are there other questions?

MR. KELLY: Can we have a minute to ask a question?

MR. UTZ: Yes.

MR. KELLY: Booker Kelly for Texaco. Are any of the present wells completed in the Drinkard that are in exception to Commission rules dualed with the Tubb?

A Yes sir, I believe there are.

MR. KELLY: If you raised the limit, wouldn't you--what do you propose for the wells that are an exception to this?

A I have no recommendation to make on it.

MR. KELLY: That are dualled in both the Drinkard and the Tubb?

A Yes, I couldn't make a recommendation as to what to do with

those at the present time.

MR. UTZ: The hearing will be recessed 'til one thirty.

(Noon recess.)

AFTERNOON SESSION

MR. UTZ: The hearing will come to order. Mr. Kelly, I believe you were asking questions before the recess.

MR. KELLY: No questions at this time.

MR. UTZ: Are there other questions of Mr. Lakson?

MR. SETH: May I ask him another question?

MR. UTZ: Yes, sir.

MR. SETH: Go ahead.

MR. RUNYON: I wanted to--I think there was a misunderstanding, at least I misunderstood, that I would like to clarify. I believe that you were calling the top of the Drinkard pay zone the top--base of the Tubb pay zone, but not calling it the top of the Drinkard, is that correct?

A That's correct, yes sir.

MR. PAYNE: What is the difference or distinction? I mean, after all, if it's going to be one, it's got to be the other, if it's the base of the Tubb, it will be under the Drinkard under your definition.

A I don't understand what you mean.

MR. PAYNE: If you call the top of the pay, or call it the vertical limits of the pay the top of the Drinkard, as a practical matter, if it's above the base of the Tubb, it will be

in the Tubb pool, and if it's below that, it would be in the Drinkard pool?

A I do not believe that at this point that we picked it as the top of the Tubb, or top of the Drinkard, I'm sorry.

MR. PAYNE: What poolwould the well be completed in if it was one feet below the line you have drawn there?

A Well, the line we have drawn, it would be in the Drinkard pool.

MR. PAYNE: So as a practical matter, it doesn't matter whether you are calling this the top of the Drinkard or calling it the top of the Drinkard pay or what you are calling it, it would be a Drinkard well if it was below and a Tubb well if it was above?

A Yes sir, as long as it's applied to this one field.

MR. PAYNE: Thank you.

MR. UTZ: Let me clarify this, please. What you are saying is that what you pick as the top of the Drinkard pay in the Justis pool is not actually the top of the Drinkard formation?

A In my opinion, it is not, no sir.

MR. UTZ: But you are calling it the Drinkard pay?

A We are calling it the Drinkard pay.

MR. UTZ: Okay. Mr. Seth?

RECROSS EXAMINATION

BY MR. SETH:

Q Mr. Lakson, the more of these little stringers that you take out of the Tubb, the less desirable the Tubb will be as a pool

or field, is that not true?

A I haven't made a detailed enough study of the Tubb itself to answer that question.

Q Well, just as a matter of logic, the more you take away from it, the less desirable it becomes?

A That's a reasonable assumption.

Q And the greater distance that you go up into the, why the less desirable the Tubb will be as a separate pool?

A Yes sir, it's reasonable to assume so.

Q Why don't you take all of the Tubb then, wouldn't that be a more practical solution?

A Take --

Q Why not move the top of the Drinkard pay zone, as you call it, to the top of the Tubb and just have one zone, wouldn't that be a --

A That would be a solution, yes sir; that would be a solution.

Q That would be a better solution than 74 feet, wouldn't it?

A I don't know.

Q If you did that, would you avoid having any wells that would be needing exceptions?

A If the Justis, Tubb and Drinkard were classified as one horizon, there would be wells in there that would require exceptions, yes sir.

Q Why is this?

A Becuase there are wells on the same 40 that are producing from the Drinkard and from the Tubb.

Q You mean some surface exceptions, you don't mean any vertical limit exception, is that right, no vertical limit exception, all the exceptions would be on proration unit exceptions, is that right?

A Yes, sir.

MR. PAYNE: If you accepted Mr. Seth's proposal, wouldn't the operator with a well on each, in each pool on the 40 end up with only half of an allowable, half as much as he has now?

A It would be reasonable to assume so, yes.

MR. PAYNE: Now, are there any wells in these two pools that are dually completed, some dual completions in both pools?

A No, sir.

MR. PAYNE: None at present?

A No, sir.

MR. PAYNE: Thank you.

MR. UTZ: Mr. Porter, did you have a question?

MR. PORTER: No, sir.

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

MR. BUSHNELL: I have two or three questions on redirect I would like to ask.

MR. UTZ: All right, sir.

REDIRECT EXAMINATION

BY MR. BUSHNELL:

Q Mr. Lakson, you testified this morning, I think, or maybe I misunderstood, and you were asked if there were any dual completions and you said yes, that is on the assumption of dualling the Tubb pay and the Drinkard pay. Now, are there any duals, any well dually completed in the Tubb and the Drinkard as such?

A No, sir.

Q But there are twin wells on two different tracts that are completed, isn't that right?

A Yes, sir.

Q Now, can the top of the Drinkard pay in the Justis be so picked that it would not affect one or more wells?

A No, sir.

Q Why did you pick this point?

A I picked the point because it was correlative with the defined limits of the Tubb and as so designated in the Humble Number 20 State "S."

Q And do you have any objection to throwing the Tubb and the Drinkard together?

A No objection.

Q Did you pick the top of the Drinkard pay because you felt that the Commission had in the past treated these as two separate sources, is that right?

A Yes, sir.

Q And is it true that you have no evidence that they were separate sources?

A That's right.

Q As a matter of fact, you have no evidence that they are common?

A That's right.

Q Will, in your opinion, based on the study and the exhibits you have offered as of the date that they were prepared, will putting the top where you recommend it affect fewer wells than it would if the top were picked at the 5858 interval in the Number 5, Amerada Number 5 Well?

A Yes, sir.

MR. BUSHNELL: That's all the questions I have.

MR. UTZ: Mr. Lakson, does Exhibit One indicate all the wells in both the Justis-Tubb and Justis-Drinkard?

A Yes sir, as of the date this was prepared.

MR. UTZ: And the only twin wells I see on this are the West States in the south half of the southeast in Section 25, is that correct?

A There are four 40-acre units in the southwest quarter--southeast quarter, I'm sorry, of Section 25.

MR. UTZ: Yes, sir; are there other questions?

MR. NUTTER: Mr. Lakson, just as a practical matter, would you agree with an observation that it appears that most of the Tubb wells are on the flanks of the pool and that most of the Drinkard

wells appear to be on the crest of the structure, so to speak?

A Yes sir, that's reasonable.

MR. NUTTER: Thank you.

MR. UTZ: Any other questions? The witness may be excused.

(Witness excused.)

MR. BUSHNELL: I have another witness to be sworn in.

MR. UTZ: Mr. Payne, will you swear the witness, please?

(Witness sworn in.)

A. E. SNYDER

a witness, called by and on behalf of the Applicant, having first been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BUSHNELL:

Q Would you state your name and place of residence?

A A. E. Snyder, I live at Hobbs.

Q Employed by Amerada as an engineer, is that right?

A Yes, sir.

Q Have you testified before this Commission in prior hearings in that capacity?

A Yes, sir.

Q Are you acquainted with subject matter of this application, the extent that you have made study of certain source material?

A Yes sir, I have.

Q And have you made a study of bottomhole pressure data in the two zones here we have been talking about in the Justis?

A Yes, sir.

Q And what did you generally find with reference to the bottomhole pressure data?

A I found generally that these pressures were scattered in both zones; initial pressures in the wells were pretty well scattered, and all of the pressure information I could gather, I could draw no conclusive evidence that the pools are one common source or that they are two common sources.

Q Did you find variation of bottomhole pressure between wells in what is commonly called the Drinkard pay zone?

A Yes, sir.

Q And did you find variation of pressures between wells within what is commonly called the Tubb pay zone?

A Yes sir, I did.

Q Now, did you make any study of oil-gas ratio tests?

A Yes, sir.

Q And what did you generally find on that?

A I found the same thing to be true, that there was a wide variation in ratios in each of the zones, and again, I had to arrive at the conclusion that it did not definitely substantiate one common source or two common sources.

Q Have you made a study of the variation of gravity --

A Yes, sir.

Q --among the wells and between pools?

A Yes, sir.

Q And what did you find there?

A The same thing was true there, the gravity from the two zones, the way they are completed now from each zone, varied about three degrees API, from about 36 to 39.

Q That differential was arrived at between wells within each pool?

A Yes, sir.

MR. BUSHNELL: That's all the questions I have.

EXAMINATION BY MR. UTZ:

Q I take it then that your conclusion from this study that you have just recited is that for all practical purposes, this is one pool probably communicated through the well bores, would that be --

A I could not definitely conclude that. The information as compiled, there was quite a wide variation of ranges of all of these things in anyone of the zones, and also varied between the two, so actually I could arrive at no definite conclusions as to whether they would be one or two.

Q Can you state what your range of pressures was in the Tubb?

A In the Tubb zone, in December of '59, we had a number of wells that were completed along about that time, and we had initial pressures taken on them. The highest pressure taken in the Tubb

was about 2695, 2595 pounds.

MR. NUTTER: Are these pressures all at sub sea datum?

A 2700 subsea; 2595, and the low pressure taken during the same month in the Tubb was about 2190.

Q (By Mr. Utz) How about the Drinkard zone?

A The Drinkard zone had a number of wells that had initial pressures right around 2600 pounds plus or minus a little bit, and we went there down to a low of 2325 pounds.

Q Were any of these pressure differentials--these are bottomhole bombs?

A Yes sir, the Drinkard pressure was taken at a minus 2800 subsea, a hundred feet lower than the Tubb.

Q Do you have the same information on GOR's?

A I don't have that--let me see, these are gas-oil ratio tests that I took from the Commission files in the Hobbs office on gas-oil ratio forms submitted by the various operators, anything that was classed as Tubb, or the wells that are carried as undesignated Tubb, 15 completions there, I find one well with a low gas-oil ratio, the lowest of all is 421, the maximum gas-oil ratio reported on these tests was 7,708.

Q And from the Drinkard?

A From the Drinkard, I have a gas-oil ratio of 321 as a low compared with 17,600 as a high. I doubted this 17,600, it was on Gulf's well Buffington Number 4 located in 13,25,37, Unit N. I believe that they have done a considerable amount of work on that

well, and possibly with the idea that it may be, may have been coming from other zones, they squeezed and re-perforated and worked with it several other times. The next highest ratio I have not counting that one is 3,464.

Q How about the gravities in the two zones, do they vary much?

A The gravities, I didn't make a taublation of those, I checked them in the engineering committee reports. The gravities, as reported from runs there, they ranged from 36 through 39 on both zones.

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

MR. KELLY: Would the perforations in the Tubb interval complete the record interval?

A In a matter of speaking, the time that we are talking about that we would like to complete any oil reservoir practically, it probably would not. If we were talking on geologic time or something where we had plenty of time, it probably would. Of course, none of us have time to wait on the money to come back to us.

MR. KELLY: It would have the same effect on the reverse relationship, perforations in the Drinkard interval?

A That would be my conclusion, yes sir.

MR. UTZ: Do you have a question, Mr. Nutter?

MR. NUTTER: Mr. Snyder, what is the current top allowable for the Drinkard pool?

A 44.

MR. NUTTER: And how about the Tubb?

A I believe it's 44 also.

MR. NUTTER: Now, did you make a study of the production history of the wells in here and determined how many of them are capable of making top allowable as compared to marginal production?

A No, I did not; I have that information on the Tubb, but not on the Drinkard.

MR. NUTTER: Could you tell me on the Tubb what the percentage of the wells is that makes its top allowable?

A About 60 per cent of the Tubb wells make top allowable.

MR. NUTTER: Specifically, do the Anderson-Prichard wells in Units I and J of section 25 make their allowable? That would be the 5-A and the 6-A, I believe.

A The Number 6-A does not make top allowable.

MR. NUTTER: What does it make, please?

A During the month of June, it produced 505 barrels. The Number 5-A, I believe Number 5-A is a top allowable well, it produced 1144 barrels in June.

MR. NUTTER: How about the West States wells, sir, in Section 25, that would be in Units O and P, specifically, that would be the 2-P well in Unit P and the 5-A well in Unit O of --

A Yes sir, they are top wells, top allowable.

MR. PAYNE: The Oil Conservation Commission records will

reflect how much they produce.

MR. NUTTER: Mr. Snyder, do you think, as far as gas-oil ratios are concerned, that there is as much variation between each of the zones as there is between the two zones?

A Yes sir, I believe that there's roughly the same comparison with any zone as there is between the two zones.

MR. NUTTER: How would you compare the variation between the zones as between the zones as far as bottomhole pressure is concerned?

A Roughly the same comparison there, too.

MR. NUTTER: And as far as gravity is concerned?

A The same situation there.

MR. NUTTER: It would appear that the two are similar because of the dissimilarity if nothing else?

A They do appear to be very similar.

MR. NUTTER: Thank you.

MR. UTZ: Other questions?

MR. SETH: In your pressure analysis, you included wells that are perforated in both intervals as they now exist?

A I am sure that some of those pressures do reflect that. I don't know whether I got into --

MR. SETH: You didn't separate those?

A I didn't know where to separate them, is what we're talking about today.

MR. SETH: That's all.

MR. UTZ: Any questions of the witness? The witness may be excused.

(Witness excused.)

MR. BUSHNELL: I don't think I offered these exhibits, Three and Four, Amerada Exhibits Three and Four. I would like to do so now subject to the right to withdraw them and have them reproduced and furnish copies to the Commission.

MR. UTZ: Is there objection to the entrance of Exhibits Three and Four into the record? They will be accepted.

MR. PAYNE: How soon will you be able to furnish those reproductions, Mr. Bushnell?

MR. BUSHNELL: The first of next week.

MR. PAYNE: All right, sir.

MR. BUSHNELL: That's all the evidence we have to offer.

MR. UTZ: Are there other witnesses in this case?

MR. KELLIHAN: I would like to present a witness on behalf of Anderson-Prichard.

(Witness sworn in.)

CHESTER SKRABACZ

a witness, called by and on behalf of Anderson-Prichard, having first been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A My name is Chester Skrabacz, S-K-R-A-B-A-C-Z.

Q By whom are you employed and in what position, Mr. Skrabacz?

A I am employed as a geologist by Anderson-Prichard Oil Corporation, Midland Office the past ten years.

Q Have you previously testified before this Commission?

A I have.

Q Mr. Skrabacz, have you prepared a cross section of the wells which include Anderson-Prichard wells?

A I have.

MR. KELLAHIN: Would you have that marked as Exhibit Number One, please?

(Thereupon, the documents were marked as Applicant's Exhibits One and Two for identification.)

Q (By Mr. Kellahin) Referring to what has been marked as Anderson-Prichard's Exhibit Number One, will you state what that exhibit shows?

A Of the two exhibits I have offered here, the Number One is a cross section --

Q That's Number One?

MR. UTZ: I believe we have them marked opposite.

A The cross section is Number Two?

MR. UTZ: Yes.

A And the plat structure map, general reference map is Number One. To be companiable here, the cross section is--on the Exhibit Number One, in green traversing from the Tidewater Number 16 "C" Coates in Section 24, and it traverses Amerada Number 8

Wimberly in Section 25, the Anderson-Prichard 1-A Carlson in Section 25, Anderson-Prichard 3-A Carlson and 4-A Carlson in the same section, and the reason of the cross section was to illustrate the structural condition of the Anderson-Prichard wells. They drop off roughly 15 to 25 feet off the Tidewater well. While dropping off, extra porosity has been developed just immediately above the Oil Commission Drinkard marker. Saturation has been uniform throughout. If you would refer to Anderson-Prichard Carlson 3-a --

MR. UTZ: On the cross section?

A On the cross section, Exhibit Two, you notice the red designates slightly fair to good oil staining and the little black blocks in the columnar section has microlog porosity, and then the perforated segment there is the perforation, and as we begin to fall off structure, we have that extra porosity and staining. During the process of drilling this well, the marker was not set at the time; in fact, the first time any Drinkard marker was mentioned was in May of 1960, but we have that one well there and the Carlson 1-A that are across the Oil Commission's Drinkard marker.

Q (By Mr. Kellahin) Does the exhibit likewise show other markers that have been picked from time to time?

A Yes; of course, on the cross section, Exhibit Number Two, we had the top of the Tubb marker included, which generally everybody agrees on, and on the cross section, you see, "Top of Drinkard, AP," which is the Anderson-Prichard marker for the

Drinkard, and immediately--and I would like to say that Amerada and the Oil and Gas Commission picked a marker a few feet lower.

Q And --

A And also on a pencil is the proposed 74-feet extension that would be found in the Amerada Number 5 Wimberly mentioned in the previous testimony, the pencil marker,that would be approximately the zone in pencil.

Q Are you in agreement with the testimony which was offered by Amerada, that its proposed marker is one that can be correlated?

A Generally, I agree very much.

Q And do you recommend the same marker as has been proposed by Amerada?

A I would.

Q Have you made any investigation or check of the wells in this area, Mr. Skrabacz?

A I have made a check in our own wells, in the Anderson-Prichard wells and the Atlantic wells in the south half of section 25. The Drinkard production is all under allowable, the Carlson 1-A was producing in June 24 barrels a day, the Carlson 2-A is 25 barrels a day, the Atlantic Number 1 Carlson is producing 22 barrels a day out of the Drinkard, and the Number 2 well is producing 17 barrels a day out of the Drinkard. In my opinion, that south part of the field is approaching under-commercial production.

Q Do you have any units on which wells have been completed

in what has been termed the Justis-Tubb and the Justis-Drinkard zone?

A Yes, and in the north half of the southeast quarter of Section 25, the Amerada Number--I mean Anderson-Prichard Number 6-A and 5-A between "40" have opened up the Tubb and the Drinkard on the same 40, but not in the same bore hole.

Q Are there other situations in the pool similar to that?

A West States has two on the south half of the southeast quarter of Section 25, the Number 2 and 3 Carlsons.

Q Now, what is the approximate cost of these wells?

A A dual completion on top of the Drinkard will vary from 130 to 160 thousand dollars, and I may go on to say, squeezing off a formation that is dually completed may vary from 10 to 25 thousand dollars because of the drilling out of the various markers and trouble you may encounter.

Q In the event the Commission does not see fit to raise the limits of the Justis-Drinkard pool, would you be either completed in two pools or have to have exceptions to --

A Well, we would evidently have to have exceptions granted, we might have to squeeze the two wells that we have on forty, on forty acres, the north half of the southeast quarter of 25.

Q Now, in the event theCommission saw fit to consider this as one common source of supply, that is, the Drinkard and the Tubb zones, and you were then granted a half of an allowable, would that have any effect on the economics of these wells?

A It would lengthen the payout time, I am sure; however, I feel that possibly the Tubb is a zone that's more well developed on the flanks, but I think it can be carried across structure, across thehighest part of the structure, and I think possibly on top of the structure where Tidewater and Amerada and Atlantic may side on 24 and the north half of 25, the Tubb may be a lot more gassier. I am kind of in favor of believing that there's two different reservoirs; of course, I am not a reservoir engineer to back me up on that.

Q Do you have any other conclusions that you would like to state to the Commission, please?

A Well, that was the end right there; any questions, anybody else?

Q Were Exhibits One and Two prepared by you or under your supervision?

A Yes, they were.

MR. KELLIHAN: I would like to offer Anderson-Prichard's Exhibits One and Two.

MR. UTZ: Without objection, they will be entered into the record.

MR. KELLIHAN: That completes the direct examination.

EXAMINATION BY MR. UTZ:

Q Mr. Skrabacz, on your proposed Drinkard marker that you sketched through the cross section over to the Carlson 3-A --

A Yes, sir.

Q --did you extend that over to the Carlson 4-A?

A Yeah, I did on this one here, I slipped up there.

Q Would you mark this, please?

A Sure, it's about at the last, it's just as a correlation point.

Q And your Anderson-Prichard 2-A produced 17 barrels per day?

A 25 barrels a day.

Q 25?

A In the month of June, 1960.

Q And 5-A produced what?

A Well, I believe it's a top allowable well out of the Tubb; I was referring to the Drinkard production in the 2-A.

Q Yes sir, so was I; how about the 1-A?

A The 1-A in the Drinkard in June, 1960, produced 24 barrels a day.

Q How about the 6-A in the Tubb?

A I didn't check that, sir; I know generally our Tubb wells, which we have approximately nine, are all top allowable wells.

Q So you think that 6-A is a top allowable well?

A Yes, sir.

Q Then by combining the pools, you actually would lose an allowable on both of these 40-acre tracts, is that right?

A That is right.

MR. UTZ: Are there other questions?

MR. PAYNE: Yes, sir.

EXAMINATION BY MR. PAYNE:

Q Mr. Skraboacz, as I understand your testimony, Anderson-Prichard actually had a top of the Drinkard that they had picked which was different than that picked by the --

A Oil Commission.

Q --or Amerada?

A Correct.

Q Now, what led you to believe now that the top that you have picked was wrong and it should be erased?

A The top that I have picked?

Q Yes, that your company had picked as the top of the Drinkard?

A Well, as I say, the first Drinkard marker that had been mentioned was in May of 1960, previous to then everybody was using their own Drinkard marker, and that's when this was changed on my map to conform with the May, 1960 meeting, which was indefinite, a Drinkard marker has never been established, every company uses their own marker, and --

Q And then your company had a marker?

A Yeah.

Q Well, you now don't think that should be the marker any more?

A I believe what Amerada is proposing to do here, identifying

a long top to increase the vertical limites in the Wimberly Number 5 to 74 feet from their marker at--what is it, 5884, 5784, is that right?

MR. BUSHNELL: 5858.

A That being the marker Amerada --

MR. UTZ: No, that's ours, 5784.

A 5784, yeah, I --

Q (By Mr. Payne) If the vertical limits are extended 40 feet, would that require any more or less exceptions than the 74-foot extension?

A I believe it would be a few more.

Q Are you familiar with the form C-105 that was filed by Anderson-Prichard on their wells in this area?

A Generally, yes sir, I do not file them myself.

Q I was wondering what they--what pool these Carlson wells are listed and what was picked as the top of the Drinkard.

A As you see them on the cross section there, that's where they were picked. I have the logs here verifying all that.

Q Did you list your Carlson 3-A Well, for instance, as a Justis-Drinkard well?

A Correct.

Q Even though it's far beyond the top of the Drinkard as established by Anderson-Prichard?

A That is right, due to economic reasons.

Q Why did you perforate above the top of the Drinkard and

still list it as a Justis-Drinkard well?

A Because of the uniform saturation and microlog continuity.

MR. PAYNE: Thank you.

EXAMINATION BY MR. NUTTER:

Q Mr. Skrabacz, if we had logs of all of the wells that are in this area on exhibits similar to this and had the continuity colored in red on all of those, would you be able to draw a line anywhere through that where it wouldn't intersect some red?

A That's right, you'd intersect some red somewhere.

Q In every one --

A That's right.

Q Now, on your cross section here beside the log on the Amerada Wimberly 8, I see a little tiny "A" just below that.

A That's the Amerada pick for the top of the Drinkard, and the OCC is just below there; I was showing the variations of Drinkard picks in the past.

Q Several years ago, there was a Southeastern New Mexico Nomenclature Committee that worked a total of various days and they established what the top of the Drinkard looked like on a log?

A Well, that's highly arbitrary at all times.

Q I was under the impression that several years ago an effort was made by geologists from all the different companies and also a representative of the Oil Conservation Commission to agree on what the various tops looked like in the logs, and I wondered if the Drinkard hadn't been established in that manner also?

A I think generally it was.

Q Which one of these three is the one that was established by the Nomenclature Committee?

A Well, I just don't know offhand.

Q I may be in error, they may not have attempted to establish the top of the Drinkard.

A I really don't know. I know they established a Jalmat and a Langlimatix, but the Drinkard, I don't know. The vertical limits had been established in the Drinkard field as designated by the Humble 20 XM.

MR. PAYNE: You were advised by a representative of the Oil Conservation in January of 1960, however, what we considered the top of the Drinkard was, were you not?

A That's right.

MR. PAYNE: Rather, in May?

A Yes.

Q (By Mr. Nutter) When was 3-A perforated, Mr. Skrabacz?

A I believe about--well over a year ago. 3-A was perforated approximately in August,1959.

MR. NUTTER: Thank you.

MR. UTZ: Of all the picks that we have here for the top of the Drinkard, the proposed so-called Amerada proposed pick intersects the least number of wells and therefore the least number of perforations, and therefore requires the least number of exceptions, is that correct?

A That is correct.

MR. UTZ: Do you suppose that fact would have influenced the proposed top, that particular --

A I believe it was more possible, but I believe it's more influenced because its been established in the Humble 20 X, of trying to get a reasonable Drinkard marker.

MR. UTZ: Other questions?

MR. RUNYON: Again, you said the Drinkard marker, you mean as a top for the Drinkard such as the Tubb marker, or do you mean a pay marker?

A I'd say a Drinkard marker, that's what I'd call it.

MR. PAYNE: Even though it doesn't correlate in the Drinkard pool and other Drinkard pools?

A It does correlate.

MR. PAYNE: You can correlate this proposed top of the Drinkard, as you call it,with other Drinkard pools?

A You can in the Drinkard field and others such as Delahite and some of the other fields in Hobbs.

MR. PAYNE: But you haven't actually tried to correlate it to other Drinkard pools?

A No sir, I think in every field you go to, you might have a little variation to it, depending on the magnitude of the structure and the thickening and thinning, so I don't believe you can set one one.

MR. PAYNE: I see.

MR. UTZ: Any other questions?

CROSS EXAMINATION

BY MR. SETH:

Q If you encounter a zone of continuous porosity which straddles your new dividing line, would you advocate that it be perforated --

A No.

Q --across the line?

A We are trying to establish a rule right today where the fewest wells would be perforated.

Q You said you did before, although you knew it straddles the line.

A Not especially, if we were aware of it in the field, wet saturation, we would not perforate.

Q Did you pick the top of theDrinkard by samples, examination of samples?

A From the Drinkard pay?

Q From the Drinkard formation.

A You can pick the top of the Drinkard staining, but you couldn't pick the lithological changes to speak of, it's all uniform dolomite.

Q There's no changes of any significance at all?

A The density--are you referring to above, you go from above your payto dense dolomite, a dolomite that has porosity and staining, rich saturation. That's usually the Drinkard pay.

MR. NUTTER: Is there a Drinkard formation on a Tubb formation?

A Well, its never been established, so we produce from what we think is the Drinkard formation and the Tubb formation separately. I think there are two different reservoirs.

MR. NUTTER: Is there a lithological change there?

A No sir, generally no. Your Tubb pay is in a dolomite --

MR. NUTTER: I am talking about formation now, not pay.

A It's all dolomite.

MR. NUTTER: The Tubb and the Drinkard?

A That's right, it's a matter of porosity developed, and I believe that the porosity developed in our Carlson 3-A and 1-A are not present on top of the structure, on the crest of the structure.

MR. NUTTER: That's all.

MR. SETH: Is the Tubb formation generally darker, dirtier than the --

A It has sand in it, I am sure; I imagine it shows in some places. You can't tell for sure from --

MR. SETH: Generally speaking, isn't that the case?

A Offhand, I wouldn't be able to answer that.

MR. SETH: You don't know whether it is or not?

A No, sir.

MR. SETH: Do you find any greater difficulty in using a different top of the Drinkard in this area than in other areas in that part of the State?

A Well, I believe you have difficulty in the Drinkard in all fields.

MR. SETH: That's all.

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

(Witness excused.)

MR. UTZ: Does that conclude your case, Mr. Kellahin?

MR. KELLAHIN: That's it, Mr. Utz.

MR. UTZ: Are there other witnesses in this case?

MR. PAYNE: Mr. Examiner, if Tidewater doesn't plan to present any testimony, I think I'll call Mr. Runyon to supplement his testimony of this morning.

MR. SETH: We are not going to put on any witnesses.

MR. UTZ: You are not going to put on any witnesses?

MR. SETH: No.

MR. UTZ: Willyou call your witness, Mr. Payne?

MR. PAYNE: Mr. Examiner, I would like to ask for a five-minute recess.

MR. UTZ: We'll take five.

(Short recess.)

(Witness sworn in.)

JOHN W. RUNYON

a witness, called by and on behalf of the Commission, having first been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. PAYNE:

Q Will you please state your name, by whom you are employed and in what capacity?

A John W. Runyon, geolgoist for the New Mexico Oil Conservation Commission.

Q Mr. Runyon, have had occasion to make a study of the wells in the area involved in this case, particularly with reference to the--running some cross section --

A Yes, sir.

(Thereupon, the document was marked as NMOCC Exhibit Number One for identification.)

Q (By Mr. Payne) Now, referring to what has been designated as Exhibit One and placed on the board, would you please explain to the Examiner what that depicts?

A It is a correlation map inwhich I have three logs on the cross section, and the one on the left is in the Tubb pool, which is Humble State "S" Number 20, and in the Justis pool the Amerada Wimberly Number 7, and in the Drinkard pool, which is Pan American State "N" Number 2. Now, I have attempted to show that the Drinkard, or the Drinkard which was picked by most companies is very close to the same pick the Commission said could be correlated across this area. In the Drinkard, State Humble "S" Number 20, the top of the Drinkard is picked on the cross section as the top that has

been used inthat pool as the Drinkard, and in the Amerada well, it is the same, and over in the Delahite Drinkard, I picked this marker which correlates across, although in the Delahite Drinkard pool, to clarify things, the Drinkard is a little bit--well, actually, it does not produce entirely from the Drinkard. In other words, the Delahite Drinkard produces from the Tubb formation, the Drinkard formation and the Abo formation and is called the Delahite Drinkard. In--the Amerada pick I believe was nigher than mine, and it's picked on this little marker where your picks come in here, picked on this marker, and it varies anywhere from 10 to 30 feet above the marker which I had picked, and this point would also --

Q Which point are you referring to now, Mr. Runyon?

A This little point right in here, the --

Q Is that the Amerada well?

A Yes, Amerada Wimberly Number 7, and it is on the Humble State "S" Number 20 in the Drinkard pool, but in checking logs in the Drinkard pool, I found that this marker in some cases disappeared entirely, and therefore, I believe that the pick I have picked here doesn't change. A cross section shows it is correlative across this entire area and indicates the Justis-Drinkard, Justis-Tubb pool, where I had induction logs and electric logs to work with, I could pick this top very, very easily.

Q You cannot only point to it,but you have shown it?

A That is correct.

Q Is that true in the pick proposed by Amerada, can you

correlate that from Drinkard pool to Drinkard pool?

A Well, in the case of this, of the Delahite Drinkard, it is not shown here above this marker, it's quite thick, it would be some, oh, say 30 to 35 feet thick, and in that case, it would not be very consistent, if that is --

Q Now, in view of the study that you have made, Mr. Runyon, do you have any specific recommendations or general recommendations that you would like to make to the Examiner and the Commission?

A I would like to recommend that theAmerada Wimberly Number 7 be used as a tight log and that the point I have picked on it be established as the top of the Drinkard marker.

Q Now, what then happens to such wells as are perforated above that?

A The wells above, we would still have the condition existing as we start out. There would still be seven wells completed across this line, although if some arrangement were made, such as in the Tubb gas pool where you have a factor of 225 feet below the top of your Tubb as being the vertical limits of that particular pool, there would be no objection, but I would prefer to establish a top of the Drinkard that I think will certainly correlate all the way across the entire area the entire area, and it should be used, although a proposed vertical limits to the Justis-Drinkard and the Justis-Tubb certainly should be considered as such. In other words, some sort of proposal in which the least amount of wells would be affected.

Q Well now, do you have any recommendations as to what to do with the wells that are affected?

A They would have to be given exception because there is no point, whether the top of the Drinkard is picked here or higher, there's no point in which you canget away from the wells, so they would have to be given exception.

Q Either be given exception or required to be squeezed?

A That is correct, and as was noted before, it would create quite an economic problem to squeeze, and of course the only other alternative is to combine the two pools, but then you have problems on where you have four twin duals completed.

Q In view of the fact that you definitely pick the top of the Drinkard, I take it that you wouldn't recommendthat any future exceptions be granted?

A That is correct.

Q Do you have anything further you would like to present, Mr. Runyon?

A Not at this time, no.

MR. PAYNE: That concludes the direct examination of this witness, Mr. Examiner.

MR. UTZ: Do you have any exhibits --

MR. PAYNE: Yes sir, I move for the introduction of OCC Exhibit Number One.

MR. UTZ: Without objection, it will be entered into the record.

EXAMINATION BY MR. UTZ:

Q Mr. Runyon, according to your pick, then we would start out with seven exceptions, is that right?

A That would be correct. If you moved--although now from the zero to fifty feet, I only counted four in my count, and I did not do mine the way he did and set up--although I counted and I could have missed one or two, and of course the higher you get, if you go from zero to a hundred feet and you count at the hundred-foot marker, you would catch 11 wells, so as you go up, it gets worser and worse. I did not check his to see how many he would have at the fifty-foot mark.

Q In your opinion, is there a vertical structure between the Tubb zone and the Drinkard zone?

A I'll say this, that on top structure, there is no indication of being any communication. In fact, in most places it is separated by a dense section which varies from 80 to 100 feet thick with very minute of local marked porosity, but on the flanks of your structure, your Tubb develops in such a manner that it is extremely difficult to tell whether or not they would be in communication. I do have cross sections which show that, that is a microlog correlation of which we could show one or enter it as an exhibit. According to it, the more wells you have, you ought to be able to determine whether it actually is tied, but on top of the structure in the area in which there are no Tubb completions, the main Tubb zone is correlated across and there's a separation by

microlog.

MR. UTZ: Are there questions of the witness? Mr. Nutter?

MR. NUTTER: Mr. Runyon, in your opinion, would it be possible to draw a line anywhere through that area that would not penetrate the perforations of some well?

A No, sir.

MR. NUTTER: Thank you.

MR. UTZ: In your opinion, does the Amerada pick propose the fewest exceptions?

A Repeat that, please?

MR. UTZ: I say, in your opinion, does the Amerada pick for the top of the Drinkard involve the fewest exceptions?

A Apparently, as things exist now, yes.

MR. UTZ: Any other questions?

MR. PAYNE: However, Mr. Runyon, your pick is based on what you as a geologist correlated, is that correct?

A That's right, as I understood from one of the other testimonies, of course, which is a different person, that that 74 feet was, I believe it's 74, was not to be called the top of the Drinkard, but merely as a pay zone differential.

MR. PAYNE: Which is really somewhat artificial in trying to handle a specific problem?

A It could have been perhaps moved and cut another point which might have correlated across to the other areas, although based on where other pools are completed and what is picked as the

top of the Drinkard, I would not recommend that top due to confusion, mainly, it could cause future confusion to say some other pool that is say discovered and you might come in there create two different tops then in that pool.

MR. PAYNE: Thank you.

CROSS EXAMINATION

BY MR. BUSHNELL:

Q Mr. Runyon, as I understand the substance of your testimony here and your recommendation, is that you are recommending to the Commission the pick of a top which would cause the--affect the fewest wells?

A Well, the top, as I have it now picked, does affect seven wells, which are the original seven in which we were notified that were completed across this line, that I feel this should be called the top of the Drinkard, but I have no objection, or I think it should be done, that another line be drawn such as in the Tubb gas pool defining the vertical limits of that pool, but not calling it a geological top.

Q All right, I think you and I are in agreement, butI think others are still confused on this. Let me paraphrase this question then: As I understand your testimony, it is that you are recommending a pick which will represent the top of the Drinkard pay zone in contrast from the top of the Drinkard geological zone?

A The top I am picking?

Q Yes, you are recommending.

A I am recommending?

Q You are recommending a common line, but as to the variation of that common line, whether it be a hundred feet, fifty feet, that would be at a place where it would cause effect to the fewest wells, is that correct?

A No sir,this line does not. Let me explain it this way then, in the--I'll go back to the Tubb gas pool, in the Tubb gas pool, you have a definition which sets up the vertical limits of the Tubb gas pool as being a hundred feet below--I mean 225 feet below the top of the Tubb marker and a hundred feet above.

Q Is that an arbitrary figure?

A Yes, sir.

Q Yes, sir.

A Now, the top of the Tubb marker was so set up because it was a marker which could be correlated over a wide area. Now, this point again, as far as mythology is concerned, and it was testified before, the geologic mythology is something that is not affected, there is no lithology change except for density, and you do have a very good marker, and that marker will correlate, but what I am proposing in that 225 feet, it states the vertical limits of that pool, but --

Q Let me ask you a question there. We are talking about the Humble Number 20 "S" Well, right?

A Yes, sir.

Q Now, isn't that 225 feet not from the top, but what is

defined by you as a marker, which is the Tubb marker?

A Yes, sir.

Q And the top of the Tubb is defined in that order as 100 feet above the so-called Tubb Marker?

A I'm not sure.

Q 100 feet?

A Apparently the top is --

Q The top is defined in that order as encountered in the Humble Well 20 State "S" Well, the order reads that the base of the Tubb shall be 225 feet below the Tubb marker?

A That's right.

Q That the top of it will be 100 feet above the Tubb marker, that the Tubb marker is the correlated line, is that correct?

A That is correct, and that 225 feet below is the nomenclature for the pool.

Q Which is an arbitrary figure, the top 100 feet above the Tubb marker?

A Yes, sir.

Q And it is an arbitrary 225-foot marker, is thatcorrect?

A That's right, and in between there you havea zone that the nomenclature does not call the Drinkard, butfalls below that 225 feet, the--that is not the top of the Drinkard.

Q Now, as I understand your recommendation here, that you are trying to make a pick --

A Which correlates with the top of the Drinkard.

Q With the top of the Drinkard, excuse me.

A So that the Drinkard pool would be that 225-foot marker.

Q That is the geological top?

A Yes sir, this is thegeological top such as is considered in the Tubb marker.

Q Now, as a further recommendation, however, you are saying to the Commission that they may do in this Justis-Drinkard the same that they did in the Tubb gas field?

A That is correct.

Q By setting one--you have picked the geologic marker to set your arbitrary top or arbitrary bottom from that marker, is that correct?

A Yes sir, that is correct. In other words, the top which I'm proposing is 74 feet above as a correlative point on that particular log, but on all the other logs in the pool, that their relation to this pick may not be 74 feet. You see, it can vary very definitely with this. What I am proposing now is that the top be picked, geological top, butthe top you all are proposing can be 200--I mean 74 feet, 100 feet, at whatever point it would best go through and eliminate--or rather would be best and that would take in the fewest wells and the fewest exceptions.

Q I think I understand you, you just want to get it in where it would affect the fewest number of wells, but the sum subtance of your recommendation is that you are recommending an arbitrary pick as to the top of the pay zone in contrast to the

top of the, or the bottom of the geological formation of that zone, am I correct?

A Well, it's arbitrary if you consider the Tubb pick in the rest of the pool arbitrary.

Q Correct, so that when we talk about the Tubb pay zone, we are talking about the Drinkard pay zone?

A Yes.

Q To that extent it is arbitrary, whatever pick we make in this particular Justis field?

A Yes.

Q And it is further my understanding of your testimony or recommendations to the Commission here, is that the Commission should attempt to set that top, as arbitrary as it may be, where it will affect the fewest wells as now completed, not in future wells, but as now completed in the Drinkard-Justis pool?

A I think we are still a little bit--this point is not, does not actually have anything to do with the point that I am actually recommending in which on your I believe Exhibit Five, or which one was it that showed the completion of the wells and the line that was drawn through?

Q That's Exhibit Number Four.

A Four, this line actually has nothing to do with that exhibit as the top of the Drinkard. I am trying to make a top of the Drinkard that is correlative in the so-called Drinkard and in the rest of the area, and if the pick that you have caught is the

proposed top of the Drinkard, or the proposed top of the Drinkard pay, it is not the same thing, in that that is the one which will eliminate and keep--I mean and take in the least number of completions.

Q Well, I recognize, I think you and I recognize they are not the same, but I still go back to the proposition that you said that the Commission in this case could handle it the same way as they did in the Tubb gas field and that they started with a correlative figure and called it the Tubb marker --

A That is correct.

Q --and then the Commission just arbitrarily set 100 feet above and 225 feet below, meaning it could have been set 400 feet below or 50 feet above?

A That is correct, but I am sure that that was based on micrologs and --

Q But that was identified as what was believed to be the reservoir limits?

A That is correct, and actually they did not, and it is not considered the top of the Drinkard.

Q But geologically --

A That's right.

Q But it is the top of the Tubb gas field, the top of the gas field so far as the Commission orders are concerned?

A That is correct.

Q One hundred feet above the Tubb marker?

A Yes.

Q And that is what you are recommending in the Number 7 as to this Justis pool?

A That is correct, and then have the Commission set some point --

Q As the top --

A --recommended for the top and then set the perforations.

MR. BUSHNELL: All right, that's all.

REDIRECT EXAMINATION

BY MR. PAYNE:

Q Mr. Runyon, now that you and Mr. Bushnell understand each other, your proposal is not to draw a line 74 feet above your top of the Drinkard, straight across --

A No, sir.

Q --and call it the Drinkard pay?

A No, sir.

Q If you did that, Mr. Runyon, you would have to accept future wells, would you not?

A Yes, actually --

Q Isn't that right?

A I don't--say for example, I am recommending this type of agreement, calling it the top of your Drinkard, but in the event, for example, two months ago, had you picked a point fifty feet above what I am recommending, that could have very easily been called the top or the vertical limits of the Drinkard pool, in which at that time would not have touched a single perforation,

but it would be--it would have been a marker that would have cleared every completion and would have satisfied everybody concerned at that time. Since completions later have been in that zone, then we would have moved that to what we recommended as 50 feet to a point of 74 feet above, I believe, on your pick here, which would be included as the vertical limits of theDrinkard pool.

Q Aren't you simply saying, Mr. Runyon, that these seven wells, you have no objection to consider them being completed in the Drinkard forma;ion, or are you --

A That is correct, and in that case, I mean that they would be completed in the Tubb. In other words, they are completed in the Drinkard, cross into the Tubb, and if you move the line 74 feet, they are geologically, these wells would be completed in both the Tubb and the Drinkard.

Q But Mr. Runyon, you can't handle the problem that way as long as these are two separate pools. If you are going to accept the seven wells, you've got to follow one or the other. Now, aren't you going to say that each of these seven, or that you have no objection to saying that each of the seven wells is completed in the Drinkard pay?

A As the correlation pick I have now, which is based on the pick which is picked in the Drinkard oil pool and which will correlate over to the Delahite, they are completed in the Tubb and Drinkard.

Q But won't you accept them, Mr. Runyon, don't you have

to say that they are completed in the Drinkard pay zone or that they are above the top of the Drinkard?

A Yes, sir.

Q That they are in the Drinkard pay zone?

A That is right.

Q But any future wells, the vertical limits of the Justis pool will be determined by the top of the Drinkard as you have picked it?

A Not quite, it would be determined from the top of the Drinkard plus seventy feet from --

Q Mr. Runyon, won't you accept future wells under your proposal?

A Only--not any of those completed across the proposed Drinkard pay zone top of 70 feet. Now, this--what I am proposing is set up exactly the way it is set up in the Tubb gas pool and in the Blinebry gas pool and I believe there are some others in which you have the same thing.

Q You would accept only--not only existing wells, but future wells?

A That is correct.

Q And that's what you're proposing here, as I understand it?

A Yes.

Q That you accept not only existing wells, but future wells?

A Yes, if they are completed below this proposed pay zone line, although I was trying to extend the top of your Drinkard

correlation and which is picked --

Q But this top is picked as the vertical limits of the Drinkard pay zone?

A Not vertical limits, no, that would be picked as a geologic top to the Drinkard, but pool-wise, the top would be such as for example in this case 74 feet above the top of the Drinkard to the base of the Drinkard formation would be the vertical limits of the Justis-Drinkard pool.

Q In other words, then would you or would you not accept wells which are drilled in the 74-foot interval henceforth?

A If it is drilled across, no sir.

MR. PAYNE: That's all.

MR. BUSHNELL: I hope Mr. Payne wasn't impeaching his own witness.

MR. PAYNE: As a matter of fact, I was, Mr. Bushnell.

MR. BUSHNELL: All right, I see; I didn't know if you were surprised.

RECROSS EXAMINATION

BY MR. BUSHNELL:

Q Have you made a study to determine how many feet you recommend the top of the Drinkard, the top of the Drinkard would be above this common marker you have picked?

A I still don't like to consider the top of the Drinkard as a pay zone, we disagree in your cross section in your Exhibit Number Four in that I have found that there are only four wells,

according to my count, that would be affected by a 50-foot proposal.

Q That 50 feet is an arbitrary figure above the pick that you have claimed represents, in your opinion, the Drinkard geological formation --

A That's correct.

Q --in the Amerada Wimberly Number 7?

A That is correct.

Q Let me ask you another question, it's quite evident Mr. Payne may be confused. You do not understand that Amerada's Exhibit Number Two means that Amerada is proposing a pick which will be 74 feet in every well in the Justis pool from the recommended figure, or the figure that the Commission Staff has heretofore used in all those other wells?

A No sir, it would be only 74 feet, it would be, as I understood you all, it would be to pick a marker 74 feet above our top in your Wimberly 5 --

Q Correct.

A --but it would vary.

MR. BUSHNELL: That's all the questions I have.

REDIRECT EXAMINATION

BY MR. PAYNE:

Q But any future wells, Mr. Runyon, that were completed in that interval using that well, you would accept?

A If it was not completed across it, it would fall either into one or the other pool.

Q And if it crosses the --

A It would not be acceptable, no, because it would involve the same problem we are now having, which falls across the top of the --

Q So if it is completed in the interval that Mr. Bushnell just pointed out, it would be in the Drinkard pool?

A If it is 74 feet below, if it was completed within the zone, which is 74 feet above the OCC top and the base of the Drinkard, then it would be a Drinkard well; if it is completed above this 74-foot marker, then it would be a Tubb well. It is exactly the same that we have in these other pools with special vertical limits.

Q As I understand it then, insofar as vertical limits are concerned, you are proposing the identical thing that Amerada is, you are simply picking the top of the Drinkard as a geologic marker?

A That's correct, to establish a geologic marker.

MR. PAYNE: I see, thank you.

A Which can be used in reference to future wells, and we would not have the same trouble, perhaps, occurring again.

MR. BUSHNELL: Off the record.

(Discussion off the record.)

EXAMINATION BY MR. UTZ:

Q I am not sure but what I'm confused now. What you are proposing is that we use the top of your Drinkard pick, which is a

geologic marker --

A That is correct.

Q --and 74 feet above that pick, wherever it may be in the pool, would be the top of the Drinkard pay section?

A It would be right here on this exhibit, it would fall at a point of roughly 5810, 5815.

Q Would the top of the Drinkard pay zone throughout the pool be just 74 feet above this marker?

A It would be 74 feet above this marker.

Q Wherever it is in the pool?

A That is correct.

MR. UTZ: Mr. Kelly?

RECROSS EXAMINATION

BY MR. KELLY:

Q Are you recommending the vertical limits at subsea depth?

A No, it isn't based on subsea, although it could be worked out in the specific log at subsea depth if so desired. Oh no, it couldn't, either, not at subsea, no.

Q Are you taking a ruler and drawing a line just straight across 74 feet, just straight across?

A No, that would be, it would be a marker 74 feet above the Drinkard, the Drinkard top which I have picked here.

Q A horizontal line?

A No, it can vary from well to well. In other words, in

two offset wells, it may be a hundred feet, but you use the same marker, or it can be, could be perhaps set up, I have not checked it, as a line existing 74 feet above the top which we have picked. I don't know how that would fall, but the main thing I am trying to do is to get a geologic top established so in the future such things as the problems we are now having, it would clear such things if we have an established geologic top. In other words, if no top is established here, why every new Drinkard discovery, maybe four, five miles away, will have a top and they will say that is the top of the Drinkard.

MR. PAYNE: Would you say it was the vertical limits of the Drinkard?

A No, in 99 per cent of the cases of all pools, it would be so declared, yes, until proved otherwise.

Q (By Mr. Kelly) As you go down-structure to another well, would it be 74 feet above the Drinkard at that well?

A As Amerada proposed it, it would not be, no. In this way they are proposing here, a specific marker on a log, as you go down-structure or up-structure, this may vary because it will normally thicken or thin out and it will vary from the top of the Drinkard.

MR. UTZ: You are talking about Amerada's proposal now, aren't you?

A As a pool limit, yes.

Q (By Mr. Kelly) Assuming your Tubb is 300 feet thick

and you go down four hundred feet, then you wouldn't have any Tubb at all, if you go down-structure four hundred feet?

A I don't believe you'll find that, I believe you'll find that as a very general rule, the whole Justis-Tubb area will remain constant, it will vary 10 or 15 feet from 320 feet thick, it wouldn't vary 400 feet.

MR. UTZ: Mr. Kellihan?

RECROSS EXAMINATION

BY MR. KELLIHAN:

Q I'm a little confused here, Mr. Runyon. At first I understood your recommendation to be that the upper portion of the vertical limits of the Drinkard pool would be 74 feet above the marker which you had picked?

A That's in the Wimberly Number 7.

Q In the Wimberly Number 7?

A Which is a marker, I believe--now, in most pools, it is a line which would be a definite distance from the top, such as the Justis-Tubb--I mean such as the Blinebry and the Tubb gas pool. I believe, if I understood them correctly, that in their specific Wimberly 5, I may be wrong, at 74 feet in their Number 7, Number 5, their pick is a log marker which is correlative, which is 74 feet above the Commission pick. Now,and if that was used as a specific pay, then it could very easily thicken and thin or it would vary or increase as you go down-structure or up-structure from this.

Q In other words, you are using the marker which Amerada has picked as being the upper limits,is that correct?

A No.

Q And the upper limit of the Drinkard pool throughout the pool would be 74 feet above the marker which you have picked?

A No sir, that's what I tried to explain, in that it is picked as a geologic, you might say a geologic point on the log in a specific well. In other words, for an example here, I'll try to show you that, although it may not work too well, in other words, I am not sure that I can make a pick here, this is the Number 7 and this is the Number 5, and we'll say that this is it here, wait a minute, it would be this one, something like that, one which would be 74 feet from here to here. Now, if you moved over into the--now, this pick say is correlative to the Humble well and in the Humble well, I believe that's it roughly, I'd have to do some checking, but say the pick is this point here, that may be more or less there --

Q But you would use the marker as the upper limit and a fixed distance of 74 feet?

A That is correct, it's a fixed distance in one well to be able to determine that point, to correlate it.

MR. KELLAHIN: That's what I wanted to know, that cleared it up, sir, thank you.

MR. UTZ: Mr. Ramey?

EXAMINATION BY MR. RAMEY:

Q Are you proposing that the vertical limits of the Justis-Drinkard pool be extended to include the lower 74 feet of the Tubb?

A Frankly, no, I am not doing that, I am trying to establish a top which would be a Drinkard top. Now, they propose 74 feet, which they point would catch the least number of perforations. If that point happened to be 50 feet that would be liable to catch the least number, then that would be the point I would recommend.

Q In your study, if they took 74 feet of Tubb away from the Tubb pool, do you think that it might discourage future development of Tubb wells?

A No, I do not believe so, although on the edges and flanks of your Tubb pool you'd have a great increase in porosity development throughout the vertical or horizontal limits, but the main Tubb pay zone there is correlative across your whole structure, would still be up above this point and I don't believe it would necessarily discourage any future completion.

Q Well, I was thinking particularly, I believe it was this Gulf Ramsey Number 7, looking at their log, they perforated I believe three intervals, and two of them up in what they determined the main pay zone and then one, and what appeared to be the best pay in the well, would be down in the 74 feet.

A That would be a matter of reclassification, I imagine.

In other words, if they were 70 feet from the top and they were allowed to open up the top perforation, as you say, and the better one appeared to be below that 74 feet, then it would be classified as a Drinkard well.

Q Do you think there might be a possibility that if 74 feet were taken away, that it might discourage future Tubb development?

A As such, perhaps yes, but it could be changed and called a Drinkard.

Q And perhaps if the Commission was to grant seven exceptions to the Drinkard pool right now, that would clarify the whole matter and would still leave the Tubb the be developed in future wells?

A That is correct, it could be done that way. It's just a matter of, I believe, according to Amerada, 74 feet would catch, with the addition of the two wells, they have five and we have now seven, and if you give exception to the seven, you would not have to change that limit. At least I count seven, they count thirteen, but I believe that the point falls in where maybe one or two feet would have perforations, would be close to this line. In a point like that, I don't know how close you would call it.

Q But that 74 feet would pick up at least five Tubb completions?

A That is correct.

Q And we would have to grant an exception to those?

A Or it is possible to just leave it, have no special

vertical limits applied, have the top of the Drinkard as I have picked it and give exceptions to these seven wells.

Q Perhaps we could have a Drinkard pay and call that the top of the Drinkard pool?

A Yes, sir.

Q And grant seven exceptions?

A Yes sir, I believe --

Q And that way, we probably wouldn't be discouraging any future development?

A That is correct.

MR. RAMEY: Thank you.

MR. UTZ: Mr. Seth?

RECROSS EXAMINATION

BY MR. SETH:

Q On this point of future exceptions, I don't know as I quite understand why you would oppose granting future exceptions if a new wells is drilled and they have continuous porosity across your new dividing line. Now, your new dividing line, if I understand your testimony, is just an artificial point?

A Well --

Q It doesn't have any relation to any geological situation at that particular point?

A Well, this point.

Q Excuse me, if that is the case, why don't you--why are you not in favor of granting future exceptions?

A Well, the main thing is because it's in an accepted point in a quite large pool, and if you were to actually change this point to say it's 75 feet above where we have it picked, then when you go to the Drinkard oil pool, then you'll have a hundred exceptions to make in that pool. In other words, I was trying to --

Q I am speaking about future development in this particular pool. Now, if an operator drills a well in the future that has porosity and straddles the line, you'll divide that into two pools and make it a dual completion?

A In the same porosity zone?

Q Yes, isn't that right, isn't that the result?

A That could very easily happen. If you moved your marker up 50 feet as was originally proposed, it would miss this main porosity zone, but it would catch approximately the same number of wells.

Q But the result of what you recommend is to cast financial burdens on operators in the future who encounter this situation by your immediate solution of these problems, isn't that the result?

A Perhaps it would, I do not know the exact consistency of the porosity, but it appears to be one zone is course, particularly, but if you perforate below, you perhaps could drain the upper, but to get away, in other words, I agree that there are places in which your porosity does cross your line, and if you leave it such as it is now, then it would leave porosity in some

cases above, but --

Q My point is simply this, that if you move the dividing line, you may be solving problems now, but you are creating additional problems in the future?

A If you get over to the flanks, then you will also find the same type of problem existing there in which the porosity zones are so close together that that 74 feet would not work there, but I think those could be problems which you could meet.

Q Wouldn't you be creating fewer problems if you either granted exceptions, seven exceptions or however many there may be now, and leaving it where it is, or taking the whole Tubb, either one way or the other?

A Well, I don't know exactly. Of course, it would be a hardship on Anderson-Prichard and West States in their--well, where they have four sets of dual wells, four 40's, and it would certainly create a hardship in that respect. Actually, either way you are going to go, you are going to have exceptions one way or the other. Now, if you combine the two pools, then your offset operators, they are certainly being drained, and that may be more of a problem than trying to give exceptions to seven wells and not allowing any more to be drilled across that zone, than it would be to combine the pools.

MR. SETH: That's all I have, Mr. Utz; thank you.

MR. UTZ: If there are no further questions, the witness may be excused.

(Witness excused.)

MR. UTZ: Do you have any further testimony in this case? Any statements?

MR. SETH: Tidewater has a statement.

MR. UTZ: You may proceed, Mr. Seth.

MR. SETH: Mr. Miller.

MR. MILLER: Prior to changing the vertical limits from that generally accepted by the operators in any area, when undeveloped locations exist and future complications are unknown, it is Tidewater's opinion that such matters should be undertaken only after a hearing.

Tidewater has made a comprehensive study of the situation involved in this hearing and could find no data which indicates the Lower Tubb and Drinkard geologic horizons contain a common source of supply. On the other hand, it found no data which definitely proves that these intervals contain two separate sources of supply. The New Mexico Oil Conservation Commission has previously recognized that these geologic intervals contained different sources of supply in other producing areas.

There are certain dangers involved in approving the subject application in that it would be possible to obtain a Drinkard-Tubb dual well when in reality it might be a dual Tubb-Tubb oil well. In addition, certain operators have completed wells in portions of the reservoir which are classified as Drinkard wells and have perforated only the Drinkard geologic interval. If this

case is approved, operators in this situation would have to perforate the Tubb interval in their wells to protect their correlative rights. Thus the burden of economic expense would rest with operators currently operating within present limits. It will create a problem in that if continuous porosities are found in this new, arbitrary marker of 74 feet above the Tubb geologic horizon, an operator would in reality be making a dual well in the Drinkard and the Tubb and would be producing from one porosity zone. We know of one case that exists in the pool now, and there may be others.

It is not Tidewater's desire to force operators to spend capital funds without a way to pay out these expenses. However, this case appears to involve into one of convenience. That is to say, what can be done to alleviate the present situation. If the vertical limits are raised 74 feet above the Drinkard geological top and Amerada Number 5 Wimberly, there would be five wells perforated across the new field top designation. Thus it would appear that we are just transferring the problem.

Tidewater believes there are two methods by which this problem can be solved and yet result in a minimum of expense to operators in the field, either, one, the vertical limits remain the same as that accepted by the operators and the violating wells be permitted to production under an exemption basis, or two, the limits if moved at all be raised to include all of the Tubb geologic horizon.

MR. KASTLER: Bill Kastler on behalf of Gulf Oil Corporation. We believe the testimony has brought out the fact that there is a difference of opinion as to where the top of the Drinkard exists. The porosities in the Tubb and Drinkard quite obviously overlap. The bottomhole pressures, gravities and GOR's do not preclude the existence of a single reservoir. Therefore, it appears to us that the inability to determine the boundary separating the two pools results in one and only one reservoir. The consolidation of the Justis-Tubb and Justis-Drinkard pools would appear to present the most practicable solution available, inasmuch as the four 40-acre areas which contain wells completed in both the Tubb and Drinkard pools could be treated as exceptions until payout or until depletion more expeditiously than the three wells under Amerada's proposal, particularly when you consider that all future completed wells will be required to be perforated on a strictly arbitrary standard without consideration of the actual facts if these actual facts are found to conflict.

Gulf therefore recommends that the Justis-Tubb and Justis-Drinkard intervals be considered as a single reservoir and that both pools be consolidated and designated as one pool. In the event this proposal is not considered practicable, Gulf believes that the present, generally recognized vertical limits of the Justis-Tubb and Justis-Drinkard pools should be continued in effect.

MR. KELLY: Mr. Robinson would like to make a statement.

MR. ROBINSON: At the present time, Texaco does not

have any production from either the Drinkard or the Tubb formations in the Justis pool; however, we have just completed a geological study, and in the very near future, we will drill a well on our C. E. Penney Lease to evaluate these zones.

We concur with the pick, with the top of the Drinkard as picked by the New Mexico Oil Conservation Commission in Amerada's Wimberly Number 7; however, we would strenuously oppose the raising of the Drinkard top by 74 feet as requested by the Applicant. The proposed lifting of the Drinkard top does not alleviate the problem that now exists. While raising the--while the requested raising of the Drinkard top may correct the wells that are now in exception to--the present wells operated by Andersen-Prichard and Amerada, then other operators would have wells that would then be in exception to the rules if the limit is raised 74 feet.

Texaco is not opposed to the operators receiving special exemptions for wells presently completed above the Drinkard top as now defined, but we would recommend that situation be corrected before any well can be dualled between the Tubb and the Drinkard when the well is perforated above the Drinkard top and is presently being called a Drinkard well. We would also oppose assigning dual Tubb allowables for the Tubb interval for allocation purposes on a common 40-acre tract.

MR. ALLEN: Ray Allen for Atlantic Refining Company. We would like to see the Justis-Tubb reservoir combined with the Justis-Drinkard reservoir; however, if the Commission does not see

fit to combine the two reservoirs in their entirety, Atlantic would concur with Amerada's proposal to extend the Justis vertical limits upward to 74 feet.

MR. KELLAHAN: On behalf of Andersen-Prichard, Andersen-Prichard concurs with the case as has been presented by Amerada and concurs in the marker which has been picked by Amerada. There seems to be a considerable amount of confusion as to what has actually occurred in this pool, and it is my understanding that while the horizontal limits of the Drinkard, the Justis-Drinkard pool have been defined, there never has been any definition of the vertical limits which would fix the vertical limits of that pool. Now, there has been a pick made by the Oil Conservation Commission and by various engineers, but as the evidence which was presented on behalf of Andersen-Prichard shows, these markers are picked by individual companies at different points in the pool. That resulted then in the situation which has been developed as the heart of this hearing now. Nobody crossed over any fixed line and perforated in two different zones, it was a matter of judgment and on the development of the porosity, and now we have a situation which exists as to whether they are in the one pool or the other.

The purpose of this hearing is to define the pool once and for all. By the proposal which has been made by Amerada, I think the evidence shows that the least number of exceptions would be found on that pick, and therefore we urge the adoption of their

proposal.

MR. BUSHNELL: On behalf of Amerada, I would like to just briefly say that the letter of July 19, 1960 I referred to earlier written to Amerada by a member of the Staff, recites that Amerada is in violation of Rule 303, and in connection with that statement, I just want to say that we do not agree with that statement. We do not think it strange, however, and we can't recognize it. It hasn't been furnished to us by the Legal Department of the Commission. We do want the record to show that we do not feel that there's any authority or that we violated any rule because up to now, there's never been an order defining the vertical limits.

MR. UTZ: Any other statements? The case will be taken under advisement, and the hearing is concluded.

STATE OF NEW MEXICO)
: ss
COUNTY OF BERNALILLO)

I, JERRY MARTINEZ, Notary Public in and for the County of Santa Fe, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings was reported by me in Stenotype and reduced to typewritten transcript by me, and that the same is a true and correct record of said proceedings to the best of my knowledge, skill and ability.

Dated at Albuquerque, New Mexico, this 14th day of September, 1960.

Notary Public

My Commission Expires:

January 24, 1962

#2064

(no order defining)

Informal application ^ of limits of Justis-Drinkard. Differentiated from Tubb.

Opp: 74' higher than accepted top of J-D.

R-464: Tubb pay
100' above, 225' below 5921'

5858': top Drinkard per OCC
5784' recommended as top
6153' recommended as base

correlative across area (?) W: no
Recommended pt is correlated.

? See what allowables on Tubb & Drinkard wells for Westates
" Anderson-Pritchard

5784
74

5858

44 bbl

Section 25, T25S, R37E

N/2 SE/4: A-P: Drinkard: 1-A ① ~~24 bbl~~ (44)
2-A ② ~~25~~ (44)
Tubb: 5-A ② 44
6-A ① 20+

S/2 SE/4: Westates: (Justis) Drinkard: 3-B ① 44
4-B ② 44
Tubb: 2-B ② 44
5-B ① 44