CASE 3643: Application of HUMBLE OIL & REFINING COMPANY FOR SALT WATER DISPOSAL, LEA COUNTY.

Case No.

3642

Application, Transcript,
Small Exhibits, Etc.

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

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

September 6, 1967

Mr. Clarence Hinkle
Hinkle, Bondurant & Christy
Attorneys at Law
Post Office Box 10
Roswell, New Mexico

Re: Case No. 3643
Order No. R-3306
Applicant:

HUMBLE OIL & REFINING CO.

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

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other Mr. Jason Kellahin - Mr. Frank Irby

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. 3643
Order No. R-3306

APPLICATION OF HUMBLE OIL & REFINING
COMPANY FOR SALT WATER DISPOSAL, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 23, 1967, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 6th day of September, 1967, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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 applicant, Humble Oil & Refining Company, is the owner and operator of the South Four Lakes Well No. 6, located in Unit I of Section 2, Township 12 South, Range 34 East, NMPM, South Four Lakes Field, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the "C" zone of the Pennsylvanian formation, with injection through perforations from approximately 10,258 feet to 10,280 feet.

(4) That should injection into the "C" zone of the Pennsylvanian formation prove inadequate, the applicant proposes to dispose of produced salt water also into the "A" zone of the

Pennsylvanian formation, said zone being presently squeezed off, through perforations from approximately 9901 feet to 9929 feet.

(5) That the applicant should be authorized to utilize the subject well to dispose of produced salt water into the "C" zone of the Pennsylvanian formation; that the injection should be accomplished through 2-inch internally plastic-coated or cement-lined tubing installed in a packer set just above the aforesaid "A" zone; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus or the annulus left open at the surface in order to determine leakage in the tubing or packer.

(6) That should injection into said "C" zone prove inadequate, the applicant should be authorized to also dispose of produced salt water into the aforementioned "A" zone utilizing the same facilities authorized for "C" zone disposal.

(7) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Humble Oil & Refining Company, is hereby authorized to utilize its South Four Lakes Well No. 6, located in Unit I of Section 2, Township 12 South, Range 34 East, NMPM, South Four Lakes Field, Lea County, New Mexico, to dispose of produced salt water into the "C" zone of the Pennsylvanian formation and, if necessary, into the "A" zone of said formation, injection to be accomplished through 2-inch tubing installed in a packer set just above the "A" zone, with injection into the perforated interval from approximately 10,258 feet to 10,280 feet in the "C" zone and 9901 feet to 9929 feet in the "A" zone;

PROVIDED HOWEVER, that the tubing shall be internally plastic-coated or cement-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus left open at the surface in order to determine leakage in the tubing or packer;

PROVIDED FURTHER, that should the applicant find it necessary to dispose of produced salt water into the "A" zone, the applicant shall, prior to such disposal, so notify the Commission.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

esr/

Case 3643
Heard 8-23-67
Rec. 8-24-67

1. Grant Humble's request for an SWD well in the S. Ranger Lake pool. The S. F. Lake #6-I L-125-34E will be converted to a disposal well in the 'C' zone of the Penn. Grant permission to dispose in the 'A' zone if necessary. In the event water cannot be disposed of in the Penn. A or C zone Grant permission to dispose of in the Keronian in this well.
2. The Commission should be notified of plans to dispose into the 'A' Penn zone or the Keronian.
3. Disposal shall be thru 2" lined tubing and under a packer set just above the disposal zone.
4. Annulus shall be filled with an inert fluid.

Thos. Dale

Docket No. 25-67

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 23, 1967

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner,
or Daniel S. Nutter, Alternate Examiner:

CASE 3639: Application of Myles A. Colligan for an unorthodox location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a well at an unorthodox location 1650 feet from the North and East lines of Section 35, Township 14 South, Range 27 East, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, in exception to the provisions of Rule 2 of Order No. R-2349.

CASE 3640: Application of Monsanto Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Rock Tank Unit Area comprising 6239 acres, more or less, of State, Fee and Federal lands in Township 23 South, Range 24 East, and Townships 22 and 23 South, Range 25 East, Eddy County, New Mexico.

CASE 3641: Application of Skelly Oil Company for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Abo and Wolfcamp formations in the well-bore of its Childress "A" Well No. 1 located in Unit L of Section 1, Township 14 South, Range 33 East, Lazy "J" Field, Lea County, New Mexico.

Dismiss

CASE 3642: Application of Pan American Petroleum Corporation for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the North Osudo-Morrow Gas Pool, Lea County, New Mexico, including a provision for 640-acre spacing and specified well locations.

CASE 3643: Application of Humble Oil & Refining Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the "C" Zone, and possibly the "A" Zone, of the Pennsylvanian formation in its South Four Lakes Well No. 6 located in Unit I of Section 2, Township 12 South, Range 34 East, South Four Lakes Field, Lea County, New Mexico.

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

REGISTER

HEARING DATE AUGUST 23, 1967 TIME: 9 A.M.

NAME:	REPRESENTING:	LOCATION:
Sumner G. Buell	Montgomery, Federici & Andrews	Santa Fe, N.M.
[illegible] Hinkle	[illegible] Hervey & Hinkle	Roswell
N DuHaime	RW Byram	Santa Fe
R L Hocker	Amerada	Tulsa, Okla.
Carl Traywick	U.S. Geological Survey	Roswell N.M.
W. J. LaRone —	John L. Kamen —	Dallas, Tex
B. K. Birell	Humble Oil	Hobbs, N.M.
Guy Buell	Pan Am	Fort Worth
George Ford	✓ ✓	✓ ✓
Jason W. Kellahin	Kellahin & Fox	Santa Fe
A. L. Porter, Jr	OCC	" "
Parker Wilson	Wilson Oil Co.	" "
Raymond Lamb	" " "	Artesia
Jerry [illegible]	Atty Wilson Oil Co	"

Case 3643

HUMBLE OIL & REFINING COMPANY

MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION
L. H. BYRD
MANAGER

August 3, 1967

POST OFFICE BOX 1600

South Four Lakes Penn-Devonian Pools
Proposed Salt Water Disposal Well

New Mexico Oil Conversation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr., Secretary-Director

Gentlemen:

Humble Oil & Refining Company respectfully requests a Hearing before the Commission to consider its application to convert South Four Lakes Well No. 6 to a salt water disposal well. It is located in Unit 1, Section 2, T-12-S, R-34-E, Lea County, New Mexico.

South Four Lakes Well No. 6 was originally completed as a dual producer from the Devonian and Penn Zone "A". The Devonian eventually watered out and was plugged off. The Penn Zone "A", 9901 to 9929 feet, watered out and was squeeze cemented during December 1966. Penn Zone "C" was perforated from 10,258 to 10,280 feet and stimulated with 5,000 gallons of acid. Two weeks of continuous testing recovered 100 percent water.

It is proposed to inject produced water into the Penn Zone "C" in South Four Lakes No. 6. If it does not take sufficient water on vacuum, we also propose to reopen Zone "A" for water injection.

The South Four Lakes Pool, all on State land, has only four remaining producers, two Penn and two Devonian. Salt water production at present is approximately 250 barrels per day. Humble operates the entire pool as a Unit, jointly owned by Humble and Phillips Petroleum Company. The nearest other Penn production is in the Ranger Lake Pool about one and one-half miles south. There are three dry holes between the two pools.

Yours very truly,

L. H. Byrd

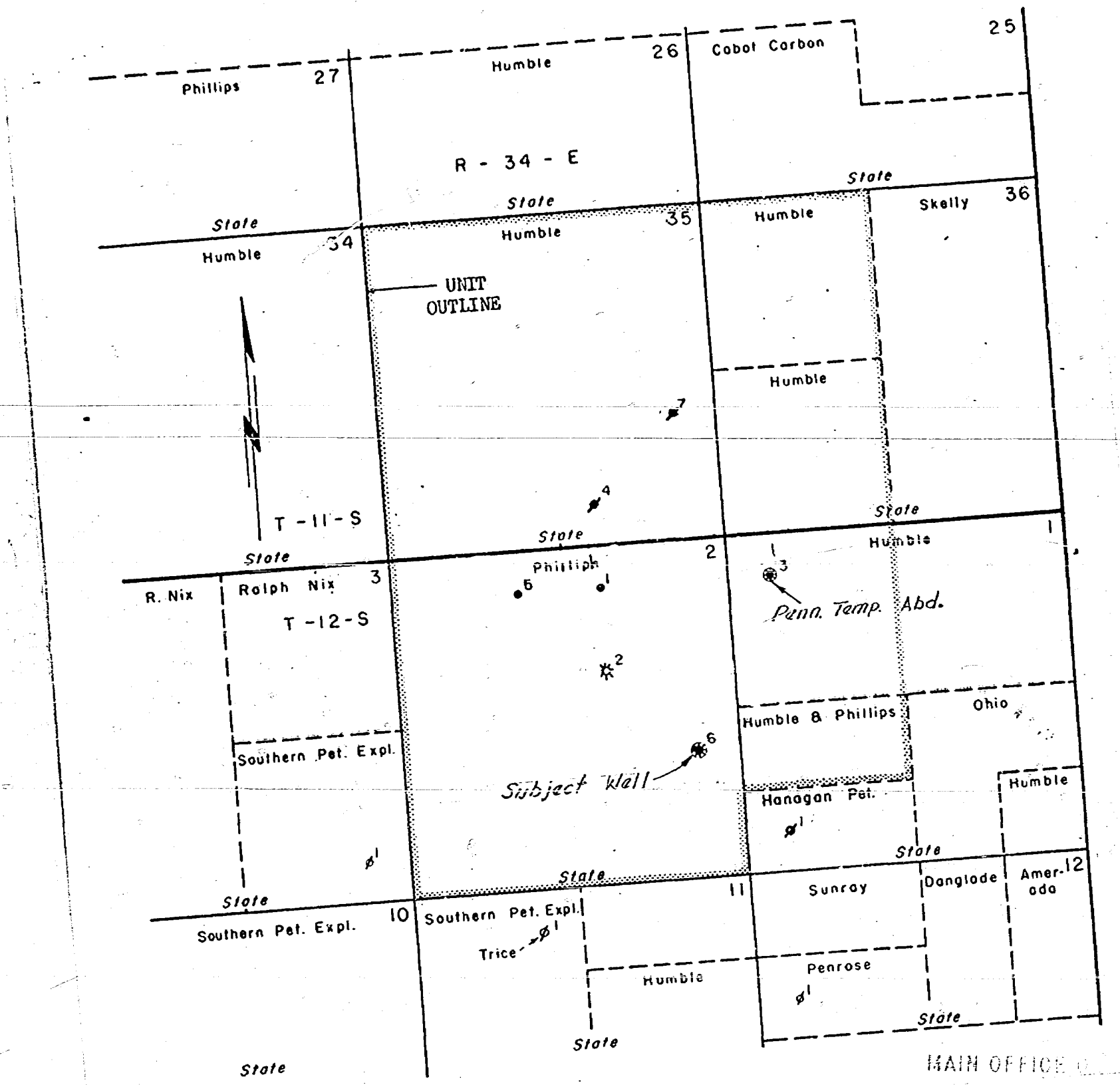
MAIN OFFICE

'67 AUG 4 PM 1 12

LHB:ek

DOCKET MAILED

Date 8-11-67



MAIN OFFICE

'67 AUG 4 PM 1 12

HUMBLE OIL & REFINING COMPANY
SOUTHWESTERN DIVISION

PROD. DEPT. HOBBS DISTRICT
SOUTH FOUR LAKES POOL
LEA COUNTY, NEW MEXICO
1967

Case 3643

SAND SPRINGS

W.W. Meeker, et al

Moran Oil ½ S/R W.W. Meeker, et al

Moran Oil ½ B/R

Sinclair ½ E-8159, Meeker, et al

Hill & Trainer, Ltd

Sinclair ½ H&P E-8159

Cabot Corp. 12-18-68 06-4900

So. Mins 4-18-71 K-

John M. Kelly 10-18-76 320 Ac.

Sweden L 11-65 16-4184

So. Mins 11-18-68 16-4337

Aztec 4-19-76 K-5913

Southern Mins. 8-16-78 K-174 37.28

Aztec 4-19-76 K-5913

So. Min 8-16-78 K-174 37.28

Mobil 1-18-76 311.56 Ac. K-5646

Sinclair 8-17-69 06-5888

Sinclair 3-20-72 K-2289 35.28

Sun 10-16-72 K-2393 62.28

L.C. Harris 10-17-71 K-1852 14.00

Jen Amer Oil 8-21-72 K-2655 35.00

Rebel 3-19-69 06-3448 10

Mobil

French (Skelly) Bogle Farms 13,340 10-7-69

Mobil 11-20-72 K-2911 10.00

Mobil 11-19-69 06-5268 10

Cameron Bogle Farms

Secony Mobil 5-19-69 06-5268 10

13,250 1-8-59

Aztec 2-15-76 K-5109

Aztec 6-15-76 K-5104

Cameron Bogle Farms

Shell 6-11-68 06-5363

Pubco 6-21-69 06-5165

Shell 4-11-68 06-5363

Sinclair 8-19-69 06-5888

So. Minerals 4-15-76 320 Ac. K-5912

So. Mins. 3-15-76 K-5379

Texas Pacific 1-21-68 06-1031

U.S. Smelt. 4-18-70 K-365 76.28

Texaco 11-19-61 06-1541

U.S. Smelt. 4-18-70 K-365 76.28

Gordon Cone 2-18-68 06-5315

Cabot Corp. 4-20-75 K-4907 16.00

Cabot Corp. 4-20-75 K-4307 16.00

11 34

22

23

Continental 6-17-68 06-3337

24

Aztec ½ 10-17-71 K-1879 40.00

Cil. Serv. ½

Corper Corporation, et al

Tidewater 3-15-76 K-5180

Texas Pacific 1-21-68 06-1031

19

Cities Service 11-21-71 K-1952 35.00

Cil. Serv. 11-21-71 K-1952 35.00

20

Aztec 6-21-76 K-6104 400 Ac.

So. Min. 3-17-74 K-4003 28.28

L.C. Harris 4-18-71 K-1952 16.00

27

J.M. Huber 7-21-74 K-4201 12.00

Texaco 6-15-68 06-3397

Cities Serv. 2-18-73 K-3100 10.00

Cities Serv. 4-18-71 K-1830 10.00

Cities Serv. 4-18-71 K-1359 21.00

28

Felmont Felmont Skelly St. 13,455 4-4-69

26

H-131610 H.B.P. E-2013

25

Duker Oil 2-15-76 K-5105

30

Sinclair 12-18-71 K-2058 20.00

Cities Serv. 10-17-71 K-1881 10.00

29

Cities Serv. 5-21-67 06-888 "Mid-Cont" 10,088 4-30-55

33

U.S. Smelt. 11-18-68 06-4156

34

Felmont 10-11-68 06-4634

H-131610 H.B.P. Pl. & 2660 Ac. K-2013

SO. 4 LAKES UNIT

35

S. FOUR LAKES

H-116506 H.B.U. 160 Ac. E-5396

H-135496 H.B.U. 160 Ac. E-6177

Duker Oil 2-15-76 K-5105

Redfern Dev. 12-18-72 K-2015 34.00 Ac.

Humble 13,288 8-19-43

31

Cities Serv. 10-17-71 K-1882 20.00

LANO

C.B. Reed, et al 3-20-72 K-2318 10.00 Reed (Carper Drlg) Rambouillet-Alt.

32

Grl. Western Drlg. 8-20-73 K-3513 20.00

Grl. W

Lone Cabot Carbon 8-13-69 06-5993

Aztec O&G 4-15-76 160.43 Ac. K-5917

J.N. Eddy 3-17-74 K-3388 13.28

Opr. Humble-63.64% Phillips-36.36%

2

6

H-135496 H.B.U. 160 Ac. E-6177

H-218169 H.B.U. 80 Ac. E-6237

Rob't. Honagan 7-16-73 K-3413 16.00

Honagan et al

E.R. Fulfree 1-15-68 06-2489

J.E. Simmons

Austral Oil 13,516 06-65

Sun 4-15-68 06-5559

Gr. West'n Dev. 8-13-73 K-3568 14.28

5

L.C. Harris

Phillips HBU E-1233

Cabot Carbon 2-13-69 06-5993

4

Y

3

Ws. Von Boeyen Murphy Corp. 12-15-69 K-39 11.00

Sohio St. Berryhill

U.S. Smelt. 11-17-69 06-5333

Corinne Grace 2-18-74 K-3907 25.00

Ralph Lowe 12-15-69 K-5 2.00

Sunray MC

Gulf Bagley Unit

9

S. Smelt. 4-18-71 K-1558 06-

Corinne Grace 2-18-74 K-3907 25.00

Mrs. Corinne Grace 2-18-74 K-3908 13.00

10

Corinne Grace 2-18-74 K-3907 25.00

Rob't. Honagan 7-16-73 K-3413 16.00

Corinne Grace Ranger Lake

Price Prod. Fort Lakes

M.P. Grace 10-15-75 80 Ac.

Texaco 11-21-71 K-1854 44.00

M.P. Grace 10-15-75 80 Ac.

Rob't. Honagan 7-16-73 K-3413 16.00

N.S. Tennessee, et al

L. B. Lowe 11-19-67 06-1513

M.P. Grace 10-15-75 320 Ac.

L.B. Hodges 12-16-68 06-4901

L.C. Harris 8-21-72 K-2657 11.00

L.C. Harris 8-21-72 K-2657 11.00

R. Lowe 8-19-68 06-4116

Aztec 4-16-61 06-889

R. Lowe 12-18-68 K-5

T.H. McElvain, Jr. 8-21-78 K-5269 13.00

Continental 11-19-67 06-1535

Murphy Corp. 12-15-69 K-39 11.00

R.E. Thogard Thogard 10,350

15 W. VanBeeren

Continental 5-21-67 06-882

Pure 5-11-67 06-881

Texaco HBD E-9242 (Marathon) Tex. Pacific 4-16-67 06-881 "AH"

Texaco 2-CZ

Ralph Nix Jr. & Ranger West Drlg.

Marathon Texaco "DA" 8-16-65 E-9240

Tex. Pacific 4-16-67 "AH"

Atco O&G E-1027

Texaco 2-CZ

M.P. Grace 10-15-75 240 Ac.

J.L. O'Neill, Jr. 1-11-69 06-5118

13

Amerada HBP E-1313

Phillips HBP E-9118

Ralph Nix HBP E-1233

Phillips HBP E-1233

Texas Pacific 4-16-67 06-881

16

Corinne Grace 6-16-74 K-4178 10.00

Sunray Mid-Cont. 4-21-69 06-5359

R. Lowe 8-19-68 06-4116

17

Union 6-19-72 16.00

Midwest 4-11-69 06-5316

12 34

Midwest 4-11-69 06-5316

Contl. 2-18-74 K-3510 25.00

Phillips HBP E-1233

Midwest 6-15-75 K-5064 21.00

Amerada HBP E-1350

21

22

Midwest 4-11-69 06-5316

(Cabot Carbon) 06-5359

R. Lowe 5780 5-10-68

Phillips & Texas Pacific E-2703

Phillips, et al 13 E-9116

W. RANGER LAKE

23

Phillips & 3 19,680 E-1027

Phillips HBP E-9118

L.C. Harris 8-17-75 K-5177 10.00

Sun 8-13-68 06-5555

J.L. O'Neill, Jr. 6-16-67 06-111

Gordon M. Cone

J.L. O'Neill 4-16-67 06-111

L.C. Harris 8-17-75 K-5177 10.00

Sun 8-13-68 06-5555

24

Aztec 3-15-75 K-5182

19

Sun 1-13-70 K-

Union 5-11-67

20

Midwest 11-11-67 06-1526

Midwest 6-15-75 K-5064 21.00

State

L.C. Harris 8-15-69 K-6 6.00

Midwest Thogard

U.S. Smelt. 8-15-71 K-1676 22.28

Tidewater E-2576 "A" (GO)

Texas Pacific & Phillips E-966

Phillips RANGER LAKE

Phillips E.T.P.C.O. E-1233

R.D. Jones, Et al

L.C. Harris 5-13-70 K-

Amerada C-1A-73 K-3336 25.00

28

27

26

25

30

29

Amerada HBP E-1560

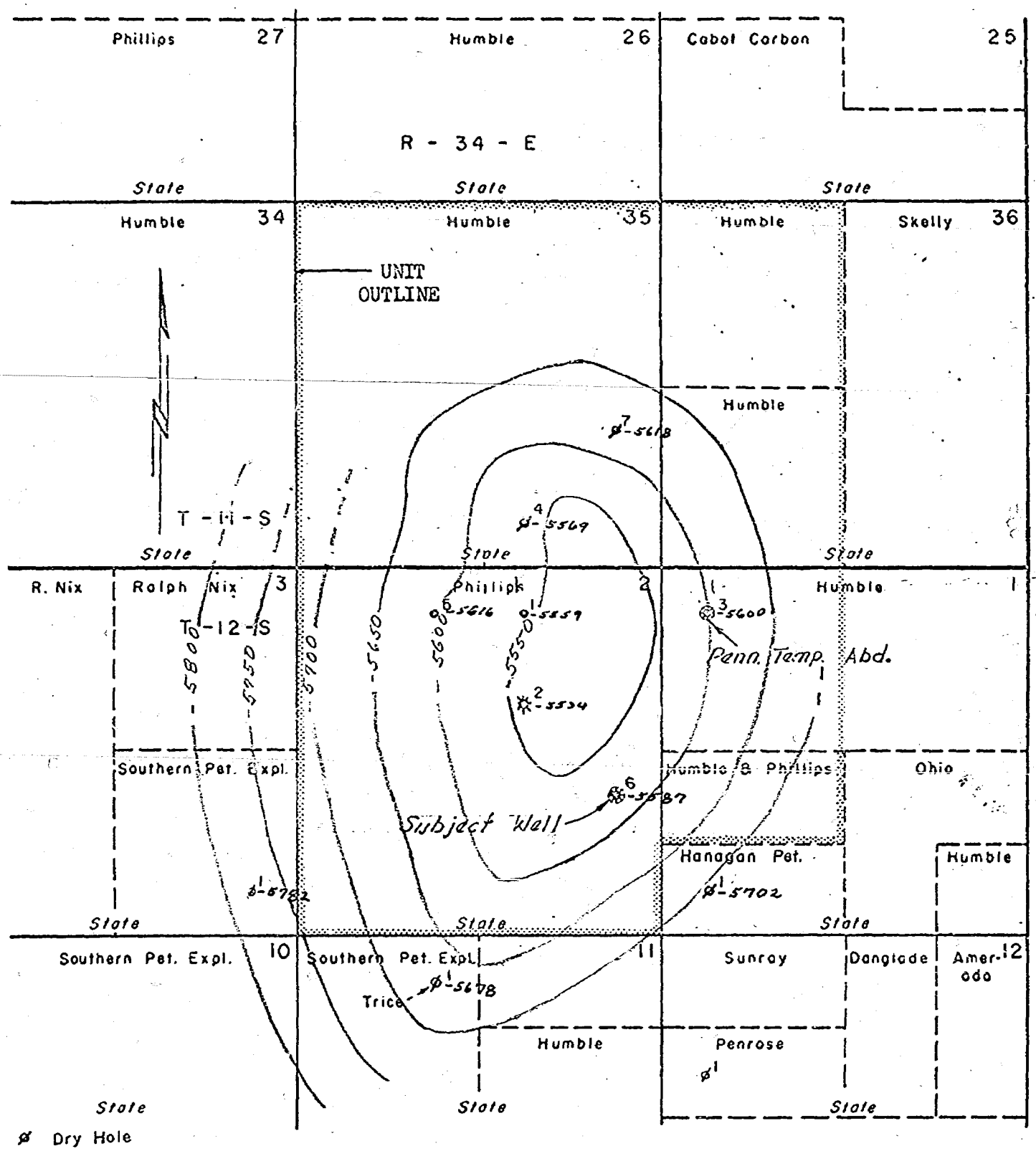
Amerada 5-17-70 K-448 10.00

H-136031 H.B.P. 320 Ac. E-2450

Hassan to J.C. Barnes Oil Co. to ½ 488' Res. O/S and all etc. below.

J.L. O'Neill, Jr. 6-16-67 06-111

G.V. White 6-18-73 K-3536 25.00



- Dry Hole
- Abandoned Well
- Penn Oil Well
- Devonian Gas Well
- Devonian Gas-Penn Oil (Dual)

STRUCTURE MAP
TOP OF PENN
7-20-67 J.T.J.

0 2000' 4000'
SCALE

HUMBLE OIL & REFINING COMPANY
SOUTHWESTERN DIVISION
PROD. DEPT. HOBBS DISTRICT
SOUTH FOUR LAKES POOL
LEA COUNTY, NEW MEXICO
1967

HUMBLE OIL & REFINING COMPANY

South Four Lakes - Penn

INDIVIDUAL WELL HISTORY:

Well No. 1 was originally completed in Penn Zone "C", from which it produced until June, 1961. It was recompleted in Zone "A" as part of a program to systematically deplete the zone. It produced from Zone "A" until February, 1966 when water increased to 90 percent. It is now completed in Zone "B" and is capable of 26 barrels of oil per day, no water.

Well No. 3 was originally completed in Zone "A" as a dual Penn-Devonian producer. After slightly over two years production the well was shut in during February, 1963 due to excessive water.

Well No. 4 was originally a Devonian producer but was plugged back and recompleted in Penn Zone "A" during November, 1959. A workover to reduce water production during January, 1967 resulted in complete failure. The well is temporarily abandoned.

Well No. 5 was originally completed in Penn Zone "C". In May, 1961 it was recompleted in Penn Zone "A" due to marginal production. It is now capable of 50 barrels of oil per day plus 70 percent water.

Well No. 6 was originally completed in Penn Zone "A" as a dual Penn-Devonian producer. By November, 1966 both the Devonian and Penn Zone "A" had watered out. Workovers on both zones resulted in failure. Penn Zone "C" was opened and tested 100 percent water. It is now temporarily abandoned.

Well No. 7 was originally completed in Penn Zone "A" after testing Zone "C". After three years it was shut in due to excessive water. It is now temporarily abandoned.

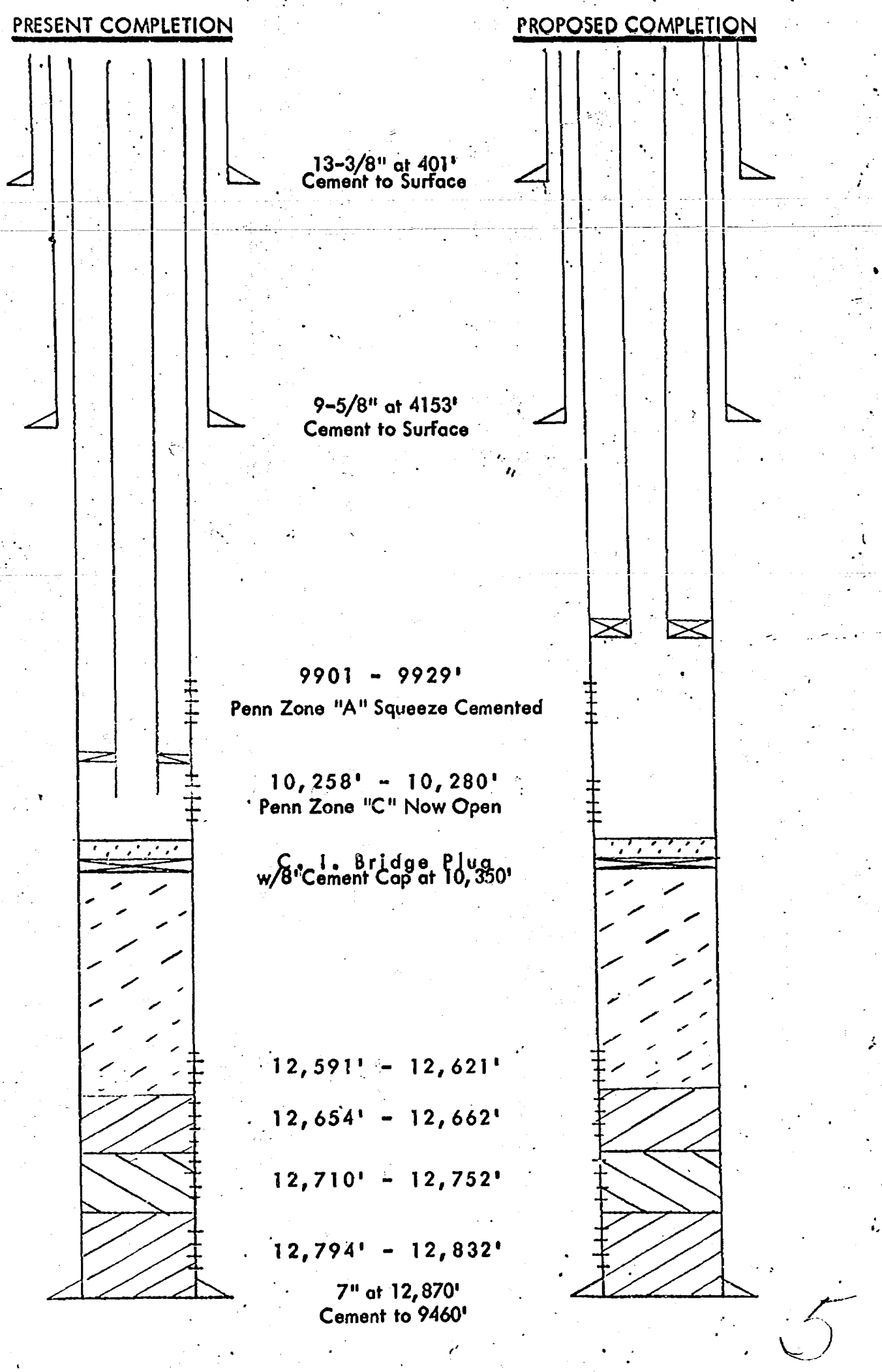
Total Pool Water Production	-	250 B/D
Estimated Future Maximum	-	500 B/D

EXHIBIT NO. 3

SOUTH FOUR LAKES UNIT NO. 6

SOUTH FOUR LAKES POOL

LEA COUNTY, NEW MEXICO



HUMBLE OIL & REFINING COMPANY

FOUR LAKES POOL

Water Analyses

	Penn Zone*	Devonian - Penn Mix**
Resistivity	.078 at 85°	.102 at 85°
Specific Gravity	1.068	1.052
pH	6.9	7.1
Calcium (Ca)	4,900 MPL[a]	3,600 MPL[a]
Magnesium (Mg)	420 MPL[a]	360 MPL[a]
Chlorides (Cl)	64,500 MPL[a]	45,500 MPL[a]
Sulfates (SO_4)	1,600 MPL[a]	1,050 MPL[a]
Bicarbonates (HCO_3)	220 MPL[a]	390 MPL[a]
Dissolved Iron (Fe)	3.5 MPL[a]	5.0 MPL[a]

a Milligrams per liter

* Sample taken at inlet to separator
** Sample taken at discharge to pit

EXHIBIT NO. 6

STATE OF NEW MEXICO
STATE ENGINEER OFFICE
SANTA FE

S. E. REYNOLDS
STATE ENGINEER

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, NEW MEXICO 87501

August 23, 1967

Humble Oil & Refining Company
P. O. Box 2100
Hobbs, New Mexico 88240

Attn. Mr. M. C. Turner

Gentlemen:

Receipt of your application to the Oil Conservation Commission which seeks to convert your South Four Lakes Unit No. 6 to a salt water disposal well is gratefully acknowledged.

FEI/ma
cc-Oil Conservation Commission

Yours truly,

S. E. Reynolds
State Engineer

By: Frank E. Irby
Frank E. Irby
Chief
Water Rights Div.

ENJAY

OIL FIELD CHEMICALS

'67 AUG 17 AM 8:29

Dan —

This is a copy of all the material I have to present in Case 3643 on the 23rd.

Bob Burrill

Quality chemicals for the petroleum industry.

HUMBLE OIL & REFINING COMPANY

P. O. Box 2100
Hobbs, New Mexico 88240
August 15, 1967

File Case 3643

22-5: Application to Convert
South Four Lakes Unit No. 6
to a Salt Water Disposal Well

State Engineer Office
Capitol Building
Santa Fe, New Mexico

Dear Sir:

Humble Oil and Refining Company has made application to convert South Four Lakes Unit No. 6 to a salt water disposal well. The case will be presented at Examiner Hearing on August 23, 1967. It has been designated Case No. 3643.

Attached hereto is Humble's letter of application plus all attachments to be presented at the Hearing.

Yours very truly,

HUMBLE OIL AND REFINING COMPANY

M. C. Turner

BKB/mcb

cc: New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico
Attn: Mr. A. L. Porter

'67 Aug 17 AM 8 29

HUMBLE OIL & REFINING COMPANY

MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION

August 3, 1967

POST OFFICE BOX 1600

South Four Lakes Penn-Devonian Pools
Proposed Salt Water Disposal Well

New Mexico Oil Conversation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr., Secretary-Director

Gentlemen:

Humble Oil & Refining Company respectfully requests a Hearing before the Commission to consider its application to convert South Four Lakes Well No. 6 to a salt water disposal well. It is located in Unit I, Section 2, T-12-S, R-34-E, Lea County, New Mexico.

South Four Lakes Well No. 6 was originally completed as a dual producer from the Devonian and Penn Zone "A". The Devonian eventually watered out and was plugged off. The Penn Zone "A", 9901 to 9929 feet, watered out and was squeeze cemented during December 1966. Penn Zone "C" was perforated from 10,258 to 10,280 feet and stimulated with 5,000 gallons of acid. Two weeks of continuous testing recovered 100 percent water.

It is proposed to inject produced water into the Penn Zone "C" in South Four Lakes No. 6. If it does not take sufficient water on vacuum, we also propose to reopen Zone "A" for water injection.

The South Four Lakes Pool, all on State land, has only four remaining producers, two Penn and two Devonian. Salt water production at present is approximately 250 barrels per day. Humble operates the entire pool as a Unit, jointly owned by Humble and Phillips Petroleum Company. The nearest other Penn production is in the Ranger Lake Pool about one and one-half miles south. There are three dry holes between the two pools.

Yours very truly,

L. H. Byrd

'67 AUG 17 AM 8

LHB:ek
bcc: Hinkle, Bondurant & Christy
P. O. Box 10
Roswell, N.M.

SAND SPRINGS

LLANO

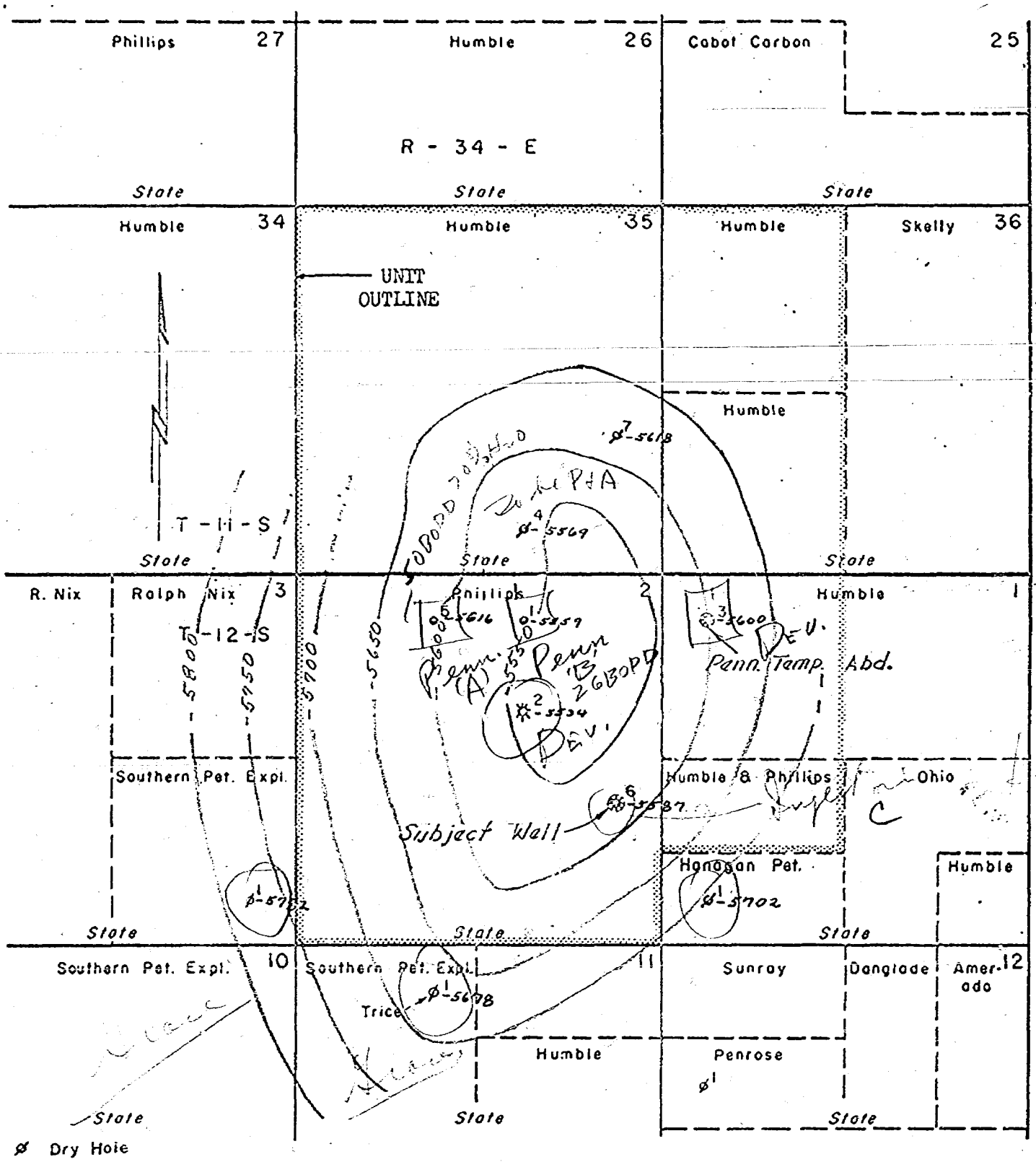
S. FOUR LAKES

W. RANGER LAKE

RANGER LAKE

SO. 4 LAKES UNIT

Opr. Humble-63.64%
Phillips-36.36%



- Dry Hole
- Abandoned Well
- Penn Oil Well
- Devonian Gas Well
- Devonian Gas-Penn Oil (Dual)

STRUCTURE MAP
TOP OF PENN
7-20-67 J.T.J.

0 2000' 4000'
SCALE

HUMBLE OIL & REFINING COMPANY
SOUTHWESTERN DIVISION

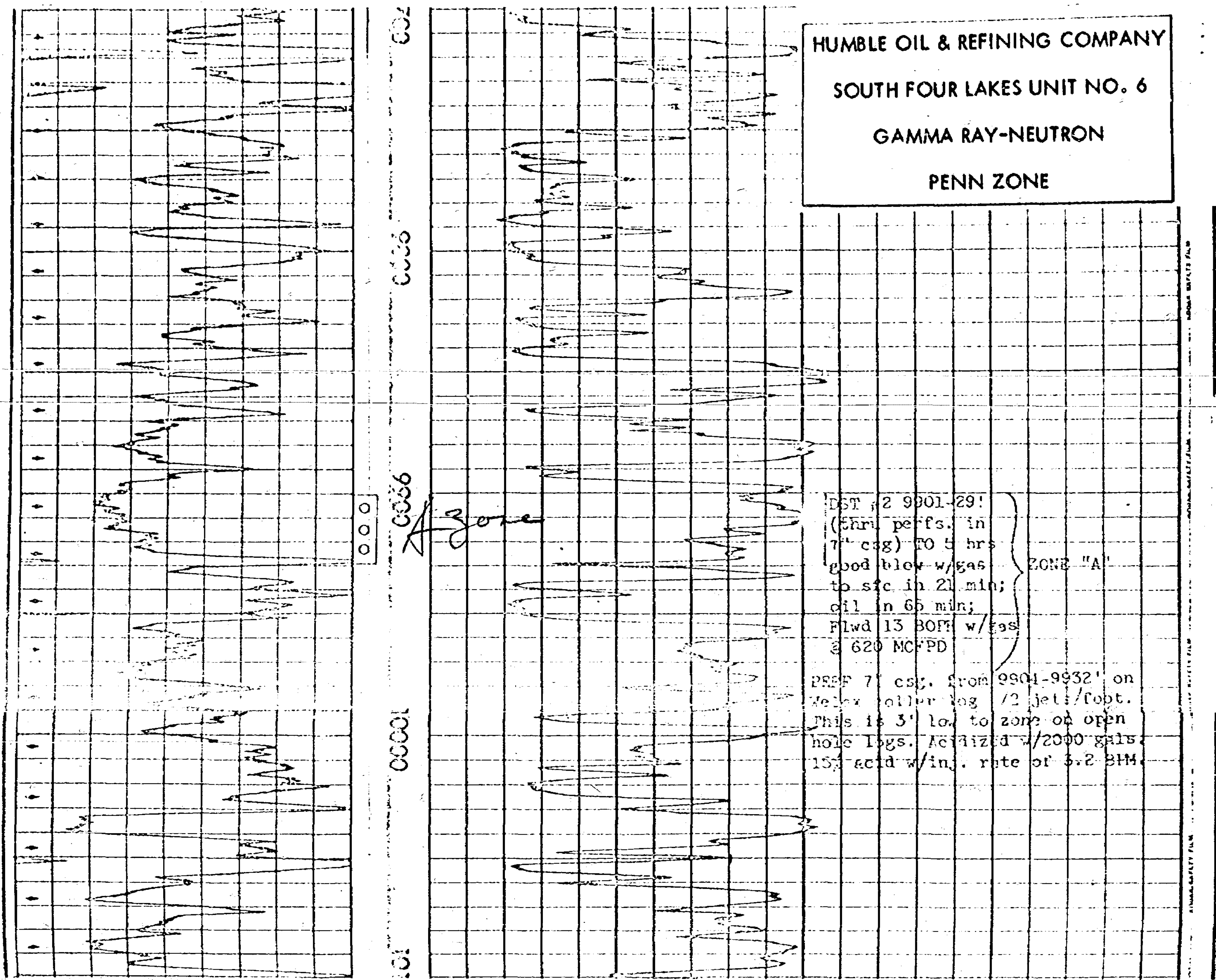
PROD. DEPT. HOBBS DISTRICT
SOUTH FOUR LAKES POOL
LEA COUNTY, NEW MEXICO
1967

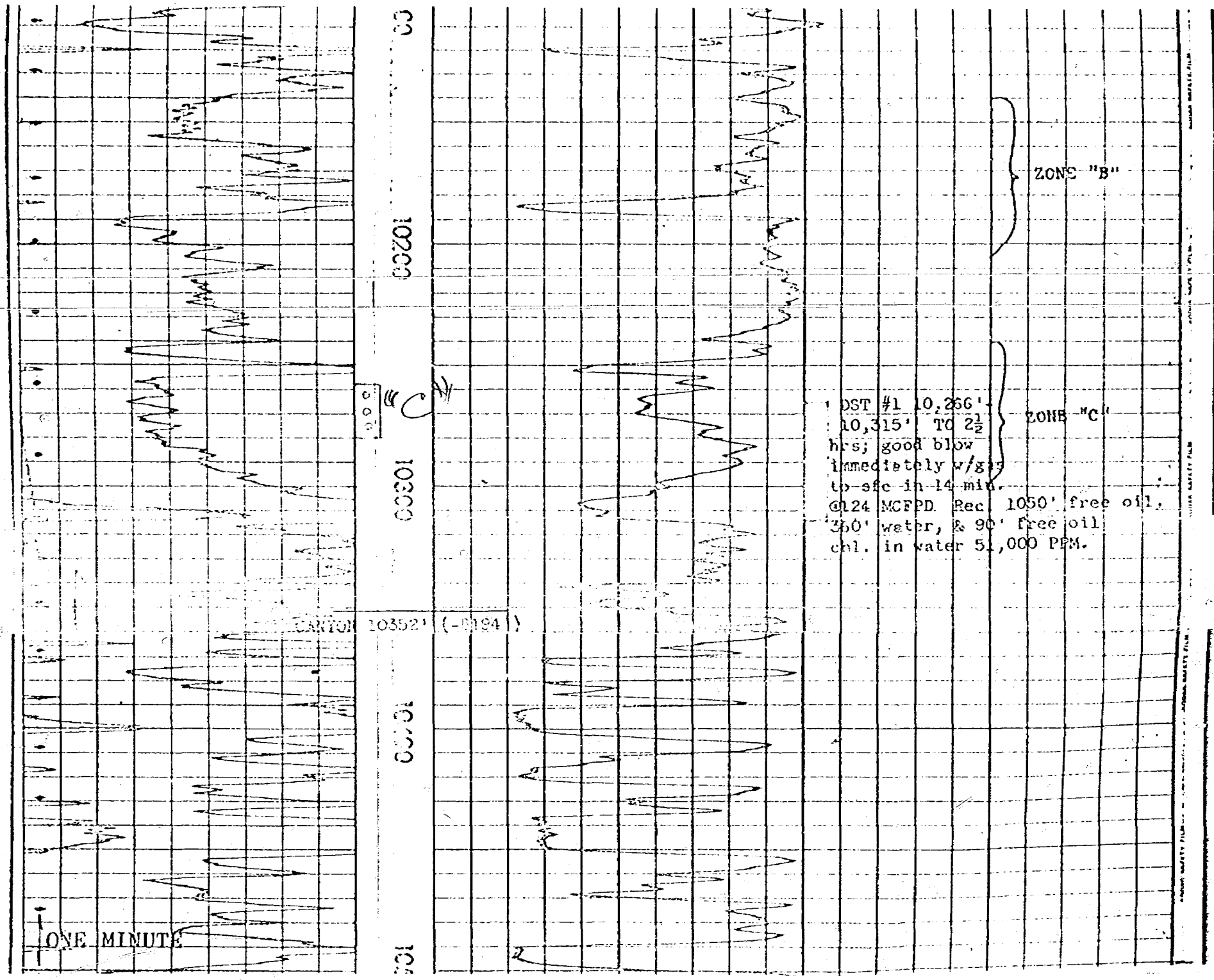
HUMBLE OIL & REFINING COMPANY

SOUTH FOUR LAKES UNIT NO. 6

GAMMA RAY-NEUTRON

PENN ZONE




ZONE "B"
ZONE "C"
DST #1 10,266'
10,315' TO 2½
hrs; good blow
immediately w/gas
to-sfc in 14 min.
@124 MCFPD Rec 1050' free oil,
360' water, & 90' free oil
chl. in water 51,000 PPM.
CARTON 10352' (-8194')
ONE MINUTE

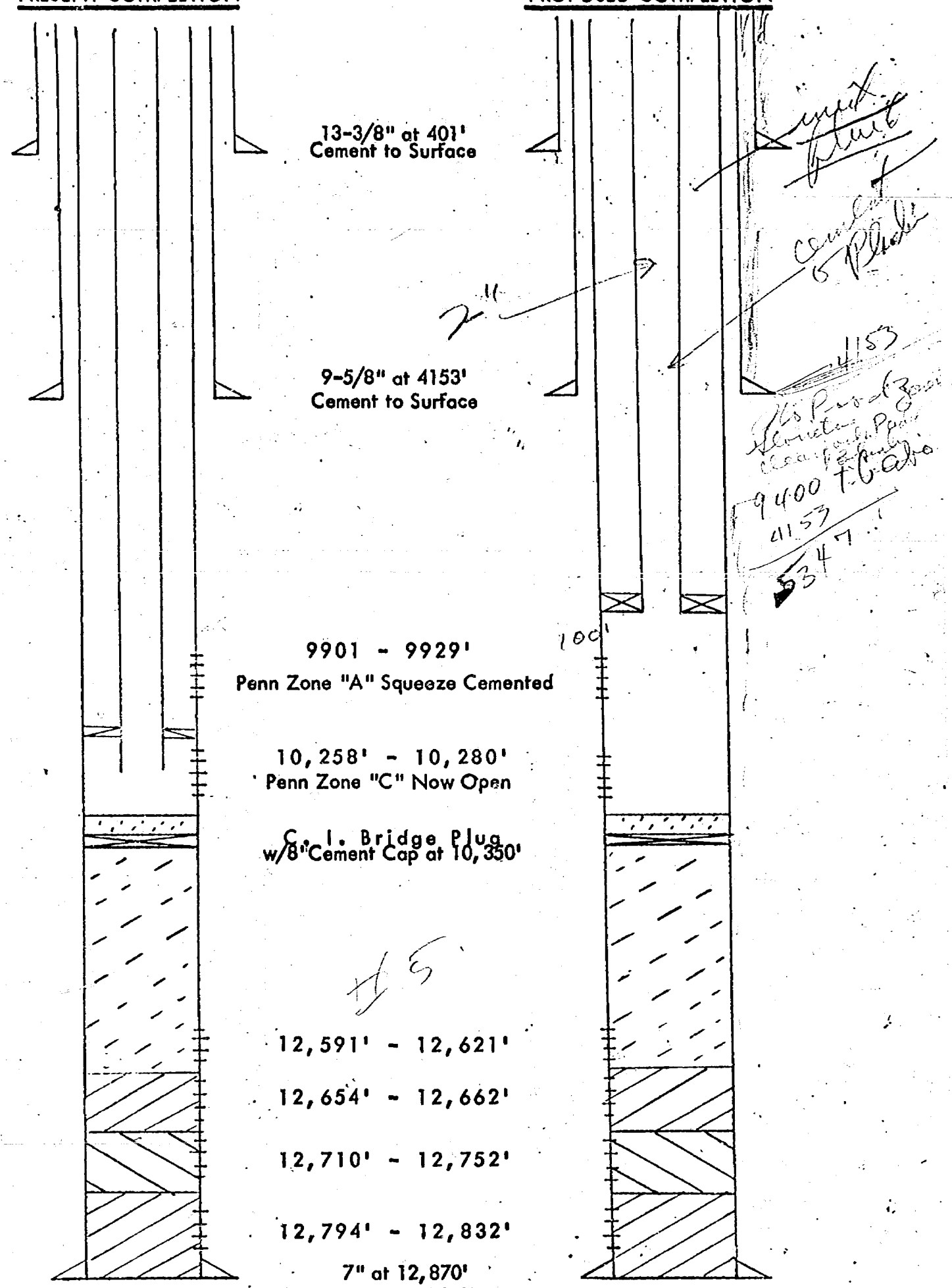
SOUTH FOUR LAKES UNIT NO. 6

SOUTH FOUR LAKES POOL

LEA COUNTY, NEW MEXICO

PRESENT COMPLETION

PROPOSED COMPLETION



HUMBLE OIL & REFINING COMPANY

South Four Lakes - Penn

INDIVIDUAL WELL HISTORY:

Well No. 1 was originally completed in Penn Zone "C", from which it produced until June, 1961. It was recompleted in Zone "A" as part of a program to systematically deplete the zone. It produced from Zone "A" until February, 1966 when water increased to 90 percent. It is now completed in Zone "B" and is capable of 26 barrels of oil per day, no water.

Well No. 3 was originally completed in Zone "A" as a dual Penn-Devonian producer. After slightly over two years production the well was shut in during February, 1963 due to excessive water.

Well No. 4 was originally a Devonian producer but was plugged back and recompleted in Penn Zone "A" during November, 1959. A workover to reduce water production during January, 1967 resulted in complete failure. The well is temporarily abandoned.

Well No. 5 was originally completed in Penn Zone "C". In May, 1961 it was recompleted in Penn Zone "A" due to marginal production. It is now capable of 50 barrels of oil per day plus 70 percent water.

Well No. 6 was originally completed in Penn Zone "A" as a dual Penn-Devonian producer. By November, 1966 both the Devonian and Penn Zone "A" had watered out. Workovers on both zones resulted in failure. Penn Zone "C" was opened and tested 100 percent water. It is now temporarily abandoned.

Well No. 7 was originally completed in Penn Zone "A" after testing Zone "C". After three years it was shut in due to excessive water. It is now temporarily abandoned.

Total Pool Water Production	-	250 B/D Penn + Dev.
Estimated Future Maximum	-	500 B/D

EXHIBIT NO. 3

3643

HUMBLE OIL & REFINING COMPANY

FOUR LAKES POOL

Water Analyses

	Penn Zone*	Devonian - Penn Mix**
Resistivity	.078 at 85°	.102 at 85°
Specific Gravity	1.068	1.052
pH	6.9	7.1
Calcium (Ca)	4,900 MPL[a]	3,600 MPL[a]
Magnesium (Mg)	420 MPL[a]	360 MPL[a]
Chlorides (Cl)	64,500 MPL[a]	45,500 MPL[a]
Sulfates (SO_4)	1,600 MPL[a]	1,050 MPL[a]
Bicarbonates (HCO_3)	220 MPL[a]	390 MPL[a]
Dissolved Iron (Fe)	3.5 MPL[a]	5.0 MPL[a]

1.068 1.052

a Milligrams per liter

* Sample taken at inlet to separator
** Sample taken at discharge to pit

1.1

EXHIBIT NO._____

Docket No. 25-67

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 23, 1967

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 3639: Application of Myles A. Colligan for an unorthodox location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a well at an unorthodox location 1650 feet from the North and East lines of Section 35, Township 14 South, Range 27 East, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, in exception to the provisions of Rule 2 of Order No. R-2349.

CASE 3640: Application of Monsanto Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Rock Tank Unit Area comprising 6239 acres, more or less, of State, Fee and Federal lands in Township 23 South, Range 24 East, and Townships 22 and 23 South, Range 25 East, Eddy County, New Mexico.

CASE 3641: Application of Skelly Oil Company for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Abo and Wolfcamp formations in the well-bore of its Childress "A" Well No. 1 located in Unit L of Section 1, Township 14 South, Range 33 East, Lazy "J" Field, Lea County, New Mexico.

CASE 3642: Application of Pan American Petroleum Corporation for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the North Osudo-Morrow Gas Pool, Lea County, New Mexico, including a provision for 640-acre spacing and specified well locations.

CASE 3643: Application of Humble Oil & Refining Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the "C" Zone, and possibly the "A" Zone, of the Pennsylvanian formation in its South Four Lakes Well No. 6 located in Unit I of Section 2, Township 12 South, Range 34 East, South Four Lakes Field, Lea County, New Mexico.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 23, 1967

EXAMINER HEARING

IN THE MATTER OF:

Application of Humble Oil and Refining Company for salt water disposal, Lea County, New Mexico.

CASE: 3643

MR. UTZ: Case 3643.

MR. HATCH: Case 3643, application of Humble Oil and Refining Company for salt water disposal, Lea County, New Mexico.

MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant, and Christy, Roswell, appearing on behalf of the applicant. We have one witness, and I think four or five exhibits. I would like to have Mr. Bevill be sworn.

(Witness sworn.)

MR. UTZ: Are there any other appearances?

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin and Fox, Santa Fe, appearing on behalf of Corinne Grace, C-o-r-i-n-n-e Grace.

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

* * *

B. K. B E V I L L, called as a witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, your residence and by whom you are employed.

A B. K. Bevill. I live in Hobbs, I represent Humble

Oil and Refining Company.

Q What is your position with the Humble?

A Senior Production Engineer.

Q Are you a graduate Petroleum Engineer?

A Yes, sir.

Q Have you previously testified before the Commission?

A Yes, sir, I have.

Q Your qualifications are a matter of record?

A Yes, sir.

Q Have you made a particular study of the Four Lakes, South Four Lakes area?

A Yes, sir.

Q What does that study consist of?

A I have been working in the Hobbs District ever since the first well was drilled in the South Four Lakes Pool, and I have worked on all of the development and the production part of it since.

Q You are familiar with all the wells and the production history and records of the wells in that area?

A Yes, sir.

Q Have you prepared several exhibits or have they been prepared under your direction for introduction in this case?

A Yes, sir.

(Whereupon, Applicant's Exhibits 1-6 marked for identification.)

Q (By Mr. Hinkle) Refer to Humble's Exhibit Number 1 and explain to the Commission what it is and what it shows.

A Exhibit 1 is a map of the general area around the Four Lakes Pool. The area enclosed in red is actually the South Four Lakes Unit, which is owned by Humble Oil and Refining Company and Phillips Petroleum Company, and operated by Humble.

Q Are the percentages of ownership shown on Exhibit 1?

A Yes, sir. Humble is 63 percent, Phillips is 36 percent.

Q This shows all of the wells which have been drilled on the unit?

A Yes, sir, it shows all the wells drilled and also the Ranger Lake Field to the south.

Q And the ownership of leasehold interest in the area, generally?

A Yes, sir.

Q Referring to Humble's Exhibit 2, explain what this shows.

A Exhibit 2 is a generalized large scale map of the Four Lakes Field. It shows all of the wells, the abandoned wells, the dry holes. It also shows a contour on top of the

Penn Zone A. If you will notice, the subject well is South Four Lakes Unit Number 6 in Section 2. To the southeast, approximately one location, Hanagan Petroleum Company drilled a dry hole. To the southwest, Southern Petroleum Company has a dry hole in this Section 11. Due west there's a dry hole in Section 3 that was drilled by Southern Petroleum Company.

Q How many producing wells are there in the field at this time.

A There are only four at this particular time. There are two Devonian and two Pennsylvanian wells.

MR. UTZ: Where is the other Pennsylvanian well?

WITNESS: The Number 1 and Number 5 in the upper part of Section 2.

MR. UTZ: Those are both Penn wells?

WITNESS: One is completed in what we call Penn Zone B, Number 5 is completed in what we call Penn Zone A.

Q (By Mr. Hinkle) Have you prepared an exhibit showing the individual well history of the wells that have been drilled in the South Four Lakes area?

A Yes.

Q Refer to Exhibit 3 and state what this shows.

A Exhibit 3 is a very brief history of each of the wells that have been completed in the South Four Lakes Penn.

Well Number 1 was originally completed in Penn Zone C and produced from it until 1961 when it was recompleted in Zone A. It is now completed in Zone B. It is capable of only 26 barrels of oil and no water.

I might add here that Zone B, what we call Zone B in the Pennsylvanian occurs only in this well Number 1 which is on top of the structure. None of the other wells will ever produce from the B Zone.

Well Number 3 was originally completed as a Zone A producer as a dual producer with the Devonian in February, 1963, it was shut-in due to excessive water. So far we haven't done anything to that well because of the Devonian producer which is still producing. It's actually temporarily abandoned.

Well Number 4 was originally a Devonian producer. In 1959 the Devonian watered out and the well was recompleted in Penn Zone A. It is now temporarily abandoned due to a workover in early 1967, resulted in complete failure.

Q You anticipate that will be plugged?

A Yes, sir. It is on the program to be plugged and abandoned.

Well Number 5 was originally completed in Penn C Zone. In May of 1961 it was recompleted in Penn Zone A. Right now it is capable of approximately 50 barrels of oil per day,

plus 70 percent water.

Well Number 6 was originally completed in Zone A as a dual Penn-Devonian producer. By November of 1966, both the Devonian and the Penn Zone A had watered out. Workovers on both of these zones earlier this year resulted in complete failure. Penn Zone C was penetrated and was tested for two weeks and produced 100 percent water.

Well Number 7 was originally completed in Penn Zone A, after testing water in Zone C. After three years it was shut-in due to excessive water and is now temporarily abandoned. Right now the pool is producing approximately 250 barrels of water from both the Penn and the Devonian Pools.

Q That's the water that you desire to dispose of by injecting it in Number 6?

A Yes, sir. We estimate that the maximum, future maximum will be somewhere in the neighborhood of 500 barrels per day.

Q Have you prepared an exhibit showing the electric log of the Well Number 6?

A Yes, sir.

Q Refer to Exhibit Number 4 and explain this to the Examiner.

A Exhibit Number 4 is a cut of a gamma ray-neutron log strictly including the Penn Zone. If you'll notice, the

upper one, this also includes some of the original completion work that was done on this well. For instance, there's a drill-stem test shown to the right that was in the A Zone and also one in the C Zone. This is all geologic work. A Zone, it was originally completed in the A Zone. You will notice the perforations that are shown in the middle of the log from 9900 to 9930, watered out. Right now, you'll notice what's called Penn Zone C and frankly, I don't know how they picked it but this is what compares to what they call Penn Zone B in Well Number 1, which is productive.

Penn Zone C is where we are perforating right now and the perforations are in the middle of the log. Incidentally, Penn Zone A has been squeezed off.

Q It is possible that you could open that if you needed to in connection with the injection of water?

A Yes, sir.

Q Now, refer to Humble's Exhibit 5 and explain what this is and what it shows.

A Exhibit Number 5 is a schematic diagram,on the left shows the present completion, how it's equipped. You'll notice at the bottom that all the Devonian Zone from 12,870 feet all the way back up, is plugged all the way back. The plug back depth is 10,350 feet now. This diagram shows Penn Zone A from 9901 to 9929 which has been squeezed cemented.

10,258 to 10,280 which we call Penn Zone C is now open. What you see there, that appears to be a packer on a tubing is a tubing anchor. This well actually was on a pump, we put it on a pump and pumped it two weeks before temporarily abandoning it. On the right is our proposed completion. Essentially, all we intend to do is pull the tubing and the anchor, run prepared tubing with a packer back to some point above Zone A and inject water into the Zone C which is now open.

If Zone C will not take water sufficiently, then it will be a minor job to work through tubing and reopen Zone A for water injection.

Q In connection with your proposed completion, will you use cement lined tubing or plastic lined tubing?

A Either cement lined or plastic coated.

Q Has a copy of your application been furnished to the State Engineer?

A Yes, sir.

Q Have you had any word from the State Engineer?

A No, sir.

Q Refer to Exhibit Number 6 and explain what this is and what it shows.

A It is strictly one of the requirements that is asked for in the rulings. It is a water analysis, one of the Penn Zone into which we intend to inject water, an analysis of the

mixed water of the Penn and the Devonian mix which we intend to inject back into the Penn Zone.

I think mainly what is wanted to know there is whether this water is potable or not. You'll notice the chlorides are 64,000 and the mixture, it's 45,000.

MR. PORTER: Mr. Bevill, in connection with that, I notice that's milligrams per liter?

WITNESS: Yes, sir.

MR. PORTER: Could you convert that to parts per million?

WITNESS: Yes, if you will divide through by the specific gravity which is 1.068 and 1.052, you will come out with parts per million. Where you have 64,500 that would be approximately 60,000 parts per million.

MR. PORTER: Thank you.

A This was something new to me from milligrams per liter.

MR. PORTER: I have seen it expressed like this recently, too.

A I think they are trying to standardize on milligrams instead of parts.

Q (By Mr. Hinkle) Is that much or more or less than seawater chlorides, 64,000?

A I'm sorry, I don't know what seawater is. I think

seawater is a little more salty, I am not sure. I think it must be somewhere in the neighborhood of a hundred thousand.

MR. PORTER: You wouldn't say this is potable, though?

WITNESS: I don't believe stock could drink it. I think that stock can drink water up to around 10,000 parts per million but they have to become accustomed to that.

MR. PORTER: That's the way I understand.

WITNESS: I know that ranchers don't like to use that because there's some cases where it is harmful to cattle. I remember we got into this is a case in Northwestern New Mexico, using water for waterfloods up there.

MR. PORTER: Shouldn't have to salt the meat if they drink this.

WITNESS: Probably cure it.

Q (By Mr. Hinkle) Do you anticipate that by disposing through injection of your water into six it's going to have anything to do with the further injection in --

A No, sir.

Q Is the formation from which that is producing a water drive or gas solution or what?

A Penn Zone A, we think, is a water drive due to its reaction and water production and the way it pretty well depleted itself by flushing with water. Penn Zone C, we have evidence that it has some water but not what you would call a

real active water drive mechanism.

Q Referring to your Exhibit Number 1, you show to the extreme south there, the West Ranger Lake Unit, I guess that's a unit?

A Yes, sir.

Q Is that being waterflooded at the present time?

A Checking over the allowables schedule before I came up, while I was studying up for this case, I noticed that it does have a water injection program, whether that's started yet or not I am not too familiar with it.

Q Are there a number of dry holes between the South Four Lakes and the West Ranger Lake area?

A Yes, sir. There's a definite trough between the two. They're two small structures, is what they are. I think I brought out that immediately to the southeast and south and southwest, and west, between the two fields are pretty well enclosed with dry holes.

Q Do you anticipate that your injection of water into Well Number 6 would have any bearing whatsoever upon the waterflood program for the Ranger Lake area?

A No, sir, it's my personal opinion that it could only help. Actually, the only connection that there is between the two fields, since there are dry holes there, would be through the aquifer or the water level portion of the field and

any replacement of water couldn't do anything but help.

Q In your study of this area and injection of water in Well Number 6, in your opinion, will it in any way effect correlative rights of any party?

A No, sir.

MR. HINKLE: That's all we have.

CROSS EXAMINATION

BY MR. UTZ:

Q Did you say there was two Devonian wells still producing?

A Yes, sir. Well Number 2, which is a single completion Devonian producer right in the middle of Section -- Well, if you look over to the smaller scale map.

Q It's so obvious I couldn't see it.

A It's in Section 2, and Well Number 3, which is over in Section Number 1.

Q There are no other Penn oils now producing in Zone C, is that correct?

A No, sir, not at this particular time.

Q That would be the reason that you don't feel that injection in Zone C will be detrimental to production?

A We feel actually, that if it does anything, it will help us. In Well Number 1 and possibly Well Number 2, when it depletes as a Devonian gas distillate well, we will very likely

go into it and test all three of these zones, finally, before we give it up. It's right on top of the structure.

Q Have you made any tests to determine how much water Zone C will take?

A No, sir. We were able to swab it almost dry, which is an indication that it may be a little stubborn. In this particular area, we are not very well blessed with good places to get rid of salt water. Only,well, to the south in the Caudell Field, we finally ended up putting water into the Devonian right at 14,000 feet, and due west of here, we got into trouble in the Lane, South Lane Pool in the San Andres and finally ended up putting water into the Devonian around, oh, somewhere around 12,005.

Q So the Devonian would take water in this area too, would it not?

A I am sure it will.

Q If you have trouble with Zone C you want to try Zone A?

A Yes.

Q If you have trouble with that, then what?

A We will come back and talk about the Devonian. We have to get rid of the water.

Q That could be drilled out, could it not?

A Very easily.

Q Your Exhibit Number 5, the schematic, indicates that the top of the cement on the three-inch is 9460, you have nine and five-eighths at 4153, which is cemented to the surface, which leaves about 5300 feet with no cement behind the pipe; what zones are in that area?

A There are no producing zones that I know of. I'm sure that they have been tested. Well, I know that they were all tested all the way down in the first two wells that were drilled. That would be, of course, below, that would be the Glorieta, and the Clear Fork Zones, which we call over there, Paddock-Blineberry and Tubb, and the Abo Zone which in this particular area, is predominantly shale. Then you go on into the Wolfcamp and then the Pennsylvanian. They have been thoroughly tested.

Q There are no fresh water zones in that area?

A Yes.

Q I mean in that 5300 foot zone?

A No, sir.

Q And you will set a packer below the top of the 9400 foot level with cement - your seven-eighths, is that right?

A Yes, sir. We intend to set that packer somewhere in the neighborhood of 100 feet above the top of Zone A, which will allow us to work through tubing if necessary.

Q What size tubing do you propose to use?

A Two inch.

Q Which will be either cement or plastic coated?

A Yes, sir.

Q Do you intend to put an inert fluid in your anulus behind the tubing?

A Inhibited?

Q Yes.

A Yes, sir.

Q You will use some pressure, I assume, if necessary?

A If absolutely necessary we intend to try to get by without it, if possible.

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

MR. HINKLE: I would like to offer in evidence Exhibits 1 through 6.

MR. UTZ: Without objections, Exhibits 1 through 6 will be entered into the record of this case.

(Whereupon, Exhibits 1 - 6 offered and admitted in evidence.)

MR. UTZ: Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q As I understand, you only have two wells presently producing from the Pennsylvanian in the South Four Lakes Unit,

is that correct?

A That is correct.

Q But you do anticipate the possibility of recompleting your Number 2 as a Penn well?

A Yes, sir.

Q What about your Number 3 Well, which is temporarily abandoned?

A It's watered out in the Penn Zone A.

Q You didn't have any production in Zone C from that well?

A It doesn't look good on the logs. When we go in for abandonment, this is a conventional dual, which is a bad set up, the way we are right now. We don't intend to bother that until the gas zone is depleted and then, when that takes place we will very likely test Zone C.

Q There's a possibility, then, you might complete that in the Zone C?

A It probably will be in the water.

Q You stated that the Southern Petroleum well, the Trice Well, I believe you referred to, in Section 11, was dry in the Penn, is that correct?

A In Section 11?

Q In Unit C in Section 11.

A I see it. Yes, sir.

Q Do you know what zones were tested in that well?

A No, sir, I don't. I know it went through the Pennsylvanian. I'm not sure whether it went to the Devonian or not.

Q Do you know whether the three zones in the Pennsylvanian were tested in that well?

A Yes.

Q All three of them?

A Well, I can't say about Zone B, we are about the only ones that have found anything in Zone B, up on our little structure there.

Q But as far as you know, there's water in the Pennsylvanian in that well?

A Yes, sir.

MR. KELLAHIN: That's all I have.

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

(Witness excused.)

MR. UTZ: Any statements in this case?

MR. KELLAHIN: May I make a brief one?

MR. UTZ: Yes, sir.

MR. KELLAHIN: If the Examiner please, Corinne Grace is the owner as shown with the Exhibits in a well located in Unit N of Section 11. If I may make reference to the well

file since I don't have a witness available, and to the proration schedule. This shows that the well is completed as a Ranger Lake Pennsylvanian well, which I realize, of course, is in a different pool, it's completed in Zone A from 9901 to 9929, and Zone C from 10,058 to 10,028. On the May schedule, shows that we will produce 4,867 barrels of oil and 5,750 mcf of gas with a production of 1216 barrels of water per month. At the present time, the well would appear to be relatively low on water as compared to other wells in the area, according to the witness' testimony. Corinne Grace makes no objection to the use of the Humble well as a disposal well at this time, but would like to reserve the right to reopen this case in the event there is some effect shown on her producing well.

MR. UTZ: Any other statements? The case will be taken under advisement.

I N D E X

E X H I B I T S

NUMBER	MARKED	OFFERED	ADMITTED
App's. 1 - 6	4	16	16

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 26th day of August, 1967.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1971.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3643, heard by me on Aug 23, 1967.

Thomas A. Dick, Examiner
New Mexico Oil Conservation Commission

HUMBLE OIL & REFINING COMPANY

MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION

August 3, 1967

POST OFFICE BOX 1600

South Four Lakes Penn-Devonian Pools
Proposed Salt Water Disposal Well

New Mexico Oil Conversation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr., Secretary-Director

Gentlemen:

Humble Oil & Refining Company respectfully requests a Hearing before the Commission to consider its application to convert South Four Lakes Well No. 6 to a salt water disposal well. It is located in Unit I, Section 2, T-12-S, R-34-E, Lea County, New Mexico.

South Four Lakes Well No. 6 was originally completed as a dual producer from the Devonian and Penn Zone "A". The Devonian eventually watered out and was plugged off. The Penn Zone "A", 9901 to 9929 feet, watered out and was squeeze cemented during December 1966. Penn Zone "C" was perforated from 10,258 to 10,280 feet and stimulated with 5,000 gallons of acid. Two weeks of continuous testing recovered 100 percent water.

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Yours very truly,

L. H. Byrd

LHB:ek
bcc: Hinkle, Bondurant & Christy
P. O. Box 10
Roswell, N. M.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Applicant EXHIBIT NO. 1
CASE NO. 3613

SAND SPRINGS

LLANO

SO. 4 LAKES UNIT

S. FOUR LAKES

W. RANGER LAKE

RANGER LAKE

Opr. Humble-63.64%
Phillips-36.36%

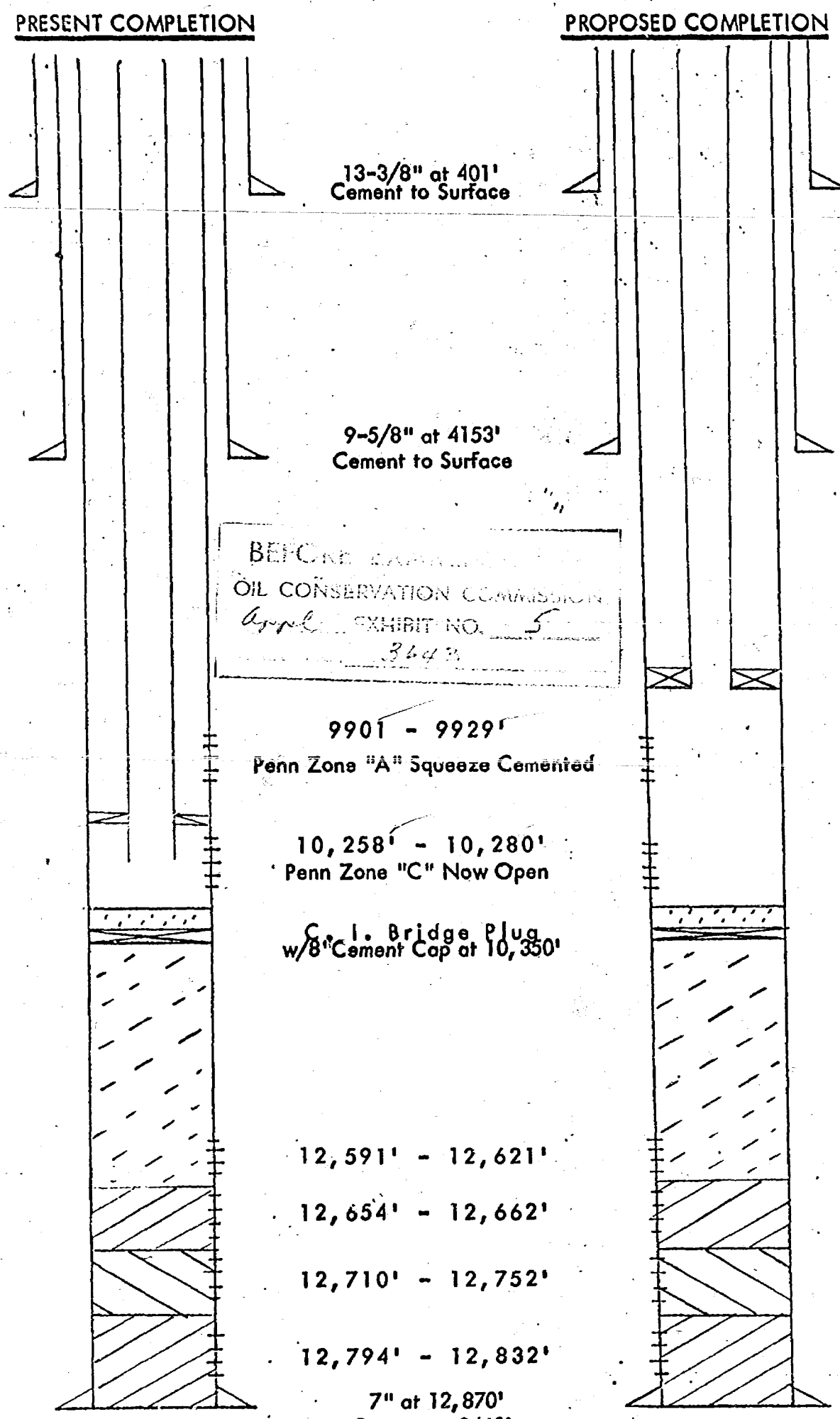
1134

12 34

SOUTH FOUR LAKES UNIT NO. 6

SOUTH FOUR LAKES POOL

LEA COUNTY, NEW MEXICO



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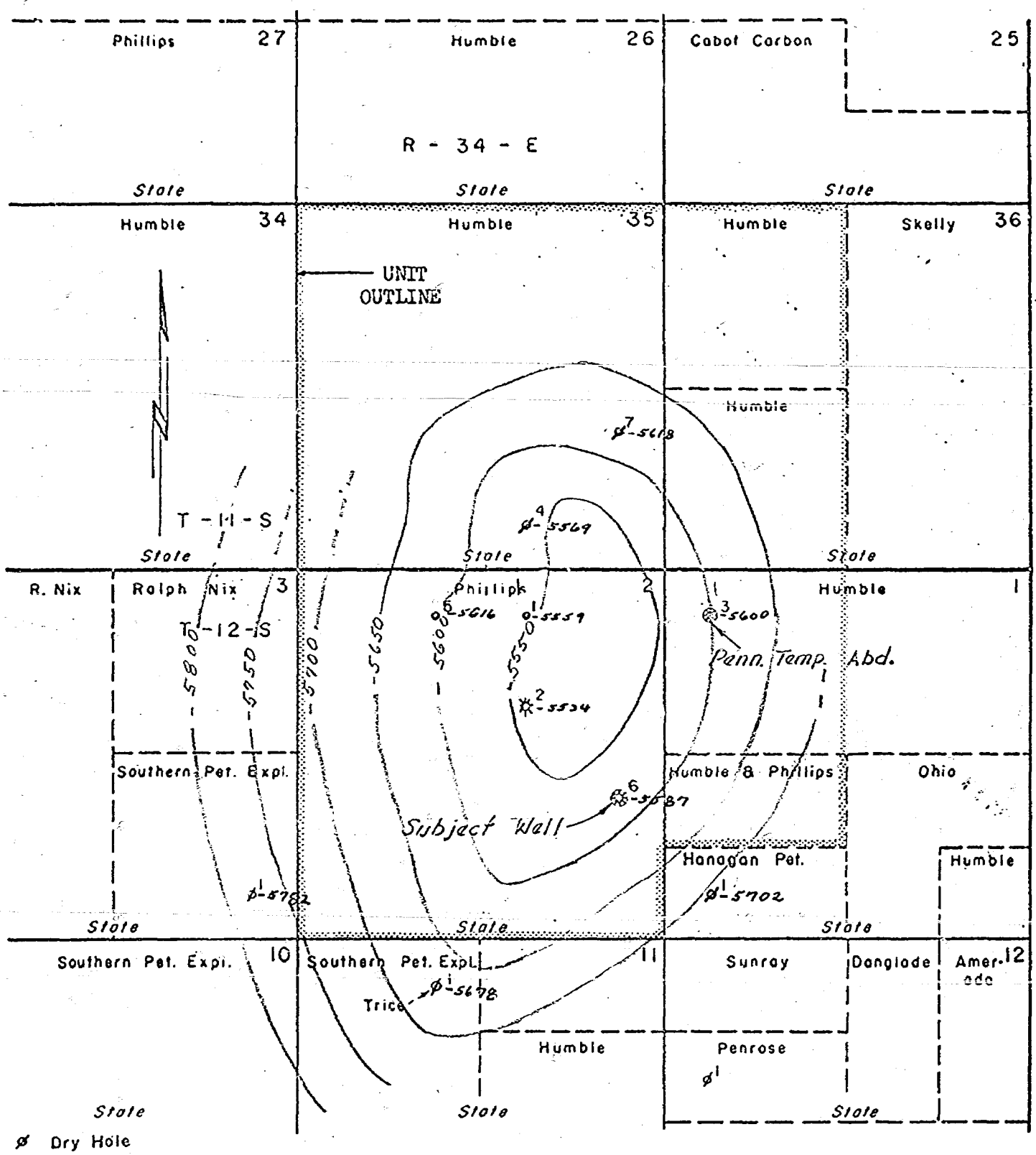

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Appl. EXHIBIT NO. 2
CASE NO. 3643

HUMBLE OIL & REFINING COMPANY
SOUTHWESTERN DIVISION
PROD. DEPT. HOBBS DISTRICT
SOUTH FOUR LAKES POOL
LEA COUNTY, NEW MEXICO
1967

HUMBLE OIL & REFINING COMPANY

South Four Lakes - Penn

INDIVIDUAL WELL HISTORY:

Well No. 1 was originally completed in Penn Zone "C", from which it produced until June, 1961. It was recompleted in Zone "A" as part of a program to systematically deplete the zone. It produced from Zone "A" until February, 1966 when water increased to 90 percent. It is now completed in Zone "B" and is capable of 26 barrels of oil per day, no water.

Well No. 3 was originally completed in Zone "A" as a dual Penn-Devonian producer. After slightly over two years production the well was shut in during February, 1963 due to excessive water.

Well No. 4 was originally a Devonian producer but was plugged back and recompleted in Penn Zone "A" during November, 1959. A workover to reduce water production during January, 1967 resulted in complete failure. The well is temporarily abandoned.

Well No. 5 was originally completed in Penn Zone "C". In May, 1961 it was recompleted in Penn Zone "A" due to marginal production. It is now capable of 50 barrels of oil per day plus 70 percent water.

Well No. 6 was originally completed in Penn Zone "A" as a dual Penn-Devonian producer. By November, 1966 both the Devonian and Penn Zone "A" had watered out. Workovers on both zones resulted in failure. Penn Zone "C" was opened and tested 100 percent water. It is now temporarily abandoned.

Well No. 7 was originally completed in Penn Zone "A" after testing Zone "C". After three years it was shut in due to excessive water. It is now temporarily abandoned.

Total Pool Water Production	-	250 B/D
Estimated Future Maximum	-	500 B/D

EXAMINER UTZ
EXHIBIT NO. 3
CASE NO. 3614

EXHIBIT NO. 3

HUMBLE OIL & REFINING COMPANY

FOUR LAKES POOL

Water Analyses

	Penn Zone*	Devonian - Penn Mix**
Resistivity	.078 at 85°	.102 at 85°
Specific Gravity	1.068	1.052
pH	6.9	7.1
Calcium (Ca)	4,900 MPL[a]	3,600 MPL[a]
Magnesium (Mg)	420 MPL[a]	360 MPL[a]
Chlorides (Cl)	64,500 MPL[a]	45,500 MPL[a]
Sulfates (SO_4)	1,600 MPL[a]	1,050 MPL[a]
Bicarbonates (HCO_3)	220 MPL[a]	390 MPL[a]
Dissolved Iron (Fe)	3.5 MPL[a]	5.0 MPL[a]

a Milligrams per liter

* Sample taken at inlet to separator
** Sample taken at discharge to pit

BEFORE EXAMINER UTZ

Applicant 6

Case No. 3613

EXHIBIT NO. 6