

CASE 3485: Application of PHILLIPS
for a waterflood project, Lea
County, New Mexico.

*will be
done for
the*

CASE No.
3485

Application,
TRANSCRIPTS,
SMALL Exhibits
ETC.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

December 6, 1966

C
O
P
Y
Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Dear Sir:

Reference is made to Commission Order No. R-3154, recently entered in Case No. 3485, approving the Phillips Northeast Maljanar Waterflood Project.

Injection will be into the three authorized water injection wells, each of which shall be equipped with tubing and a packer set approximately 50 feet above the uppermost perforation. The casing-tubing annulus shall be loaded with an inert fluid and a pressure gauge installed on the annulus at the surface.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which the State "E" project will be eligible to receive under the provisions of Rule 701-E-3 is 210 barrels per day when the Southeast New Mexico allowable factor is 42 and the maximum which the State "D" project may receive is 168 barrels per day.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

-2-

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Santa Fe, New Mexico
December 6, 1966

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In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSH/ir

cc: Mr. Frank Irby
State Engineer Office
Santa Fe, New Mexico

Oil Conservation Commission
Hobbs, New Mexico

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

November 28, 1966

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

Re: Case No. 3485
Order No. R-3154
Applicant:

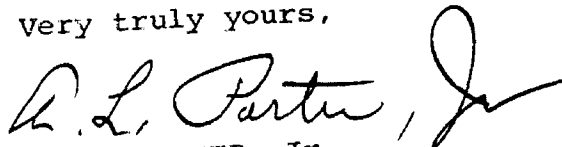
PHILLIPS PETROLEUM CORPORATION

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

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. 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. 3485
Order No. R-3154

APPLICATION OF PHILLIPS PETROLEUM
COMPANY FOR A WATERFLOOD PROJECT,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 8 a.m. on November 16, 1966,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of November, 1966, 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, Phillips Petroleum Company, seeks
permission to institute a waterflood project in the Maljamar Pool
by the injection of water into the Grayburg-San Andres formation
through three injection wells in Sections 8 and 9, Township 17
South, Range 33 East, NMPM, Lea County, New Mexico.

(3) That the applicant further seeks an administrative
procedure whereby said project could be expanded to include
additional lands and injection wells in the area of the said
project as may be necessary in order to complete an efficient
injection pattern; that said administrative procedure should
provide for administrative approval for conversion to water
injection in exception to the well response requirements of
Rule 701 E-5 of the Commission Rules and Regulations.

-2-

CASE No. 3485
Order No. R-3154

(4) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(5) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided, however, that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

IT IS THEREFORE ORDERED:

(1) That the applicant, Phillips Petroleum Company, is hereby authorized to institute a waterflood project in the Maljamar Pool by the injection of water into the Grayburg-San Andres formation through the following-described wells in Township 17 South, Range 33 East, NMPM, Lea County, New Mexico:

Phillips Petroleum Co., Phillips State E Well No. 2,
located in Unit J of Section 8

Phillips Petroleum Co., Phillips State D Well No. 3,
located in Unit N of Section 9

Phillips Petroleum Co., Phillips State D Well No. 4,
located in Unit K of Section 9

(2) That the subject waterflood project is hereby designated the Northeast Maljamar Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve expansion of the Northeast Maljamar Waterflood Project to include such additional lands and injection wells in the area of said project as may be necessary to complete an efficient water injection pattern; that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

-3-

CASE No. 3485

Order No. R-3154

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

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

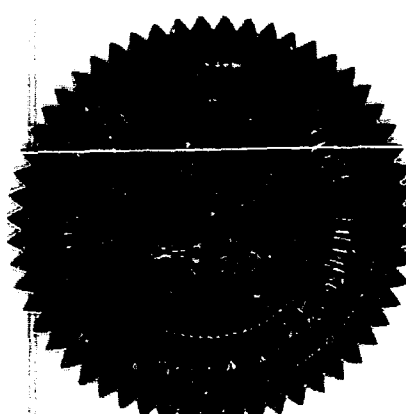
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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



esr/

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 11/22/66

CASE NO. 3485

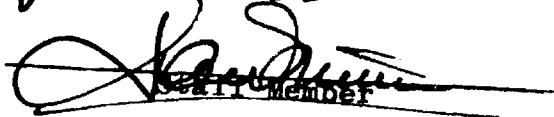
HEARING DATE 8AM 11/16/66
DSN @ SF

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

Enter an order authorizing Phillips Petroleum Co. to institute a waterflood project in the Maljama Pool, Lea Co., N. Mex by the injection of water into Grayburg-San Andres formation through the following wells:

PFCo	Phillips	Stem	E	# 2	J	8-17S-33E
"	"	"	D	# 3	N	9-17S-33E
"	"	"	"	# 4	K	9-17S-33E

Provide for adn expansion of said project to include add inf wells without the necessity to wait for response as reqd by Rule 701 in order to complete and efficient injection pattern. Otherwise, usual waterflood order.


Commissioner



STATE OF NEW MEXICO
STATE ENGINEER OFFICE
SANTA FE

S. E. REYNOLDS
STATE ENGINEER

October 14, 1966

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

66 OCT 17 AM 3 07
66-3485

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Phillips Petroleum Corporation submitted October 10, 1966 which seeks approval for a waterflood project in Sections 8 and 9, T. 17 S., R. 33 E. The wells sought to be converted are State "E" #2 and State "D" wells Nos. 3 & 4. Applicant also seeks provision for administrative approval to convert its State "E" well #4 to water injection at some future date.

This office offers no objection to the granting of this application provided the wells are completed in the manner shown on the diagrammatic sketches submitted with the application.

FEI/ma
cc-Phillips Petro. Corp.
F. H. Hennighausen

Yours truly,

S. E. Reynolds
State Engineer

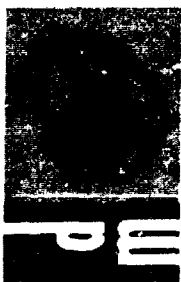
By:

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

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-4491 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
November 2, 1966

EXAMINER HEARING

IN THE MATTER OF:)

Application of Phillips Petroleum)
Company for a waterflood project,)
Lea County, New Mexico)

) Case No. 3485 3486

Application of Shenandoah Oil)
Corporation for a waterflood project.)

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3485.

MR. HATCH: Case 3485, Application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico.

If it please the Examiner, it appears that the legal advertisement contained an error in the pool description of this case. The pool should have been described as a Maljamar Pool rather than a Vacuum Field, and I would like to move at this time that Case 3485 be continued to 8:00 A.M., November 16, 1966, in order to allow the case to be re-advertised correctly.

MR. UTZ: We will call Case 3486 which is the same situation.

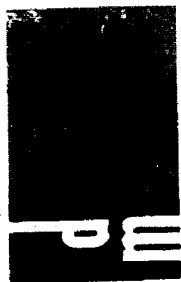
MR. HATCH: Yes. Case 3486, Application of Shenandoah Oil Corporation for a waterflood project, Lea County, New Mexico. It is the same situation in this case. It should have been advertised as Maljamar Pool rather than Vacuum Field. I would like to also move at this time that Case 3486 be continued to 8:00 A.M., November 16, 1966, in order to allow the case to be advertised correctly.

MR. UTZ: Case 3485 and Case 3486 will be continued until November 16, 1966 at 8:00 A.M.

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMAS BLDG. • P.O. BOX 1092 • PHONE 243-6671 • ALBUQUERQUE, NEW MEXICO
1203 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO



PAGE 3

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

I, W. DON MCINTYRE, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission Examiner at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, I have affixed my hand this 17th day of November, 1966.

W. Don McIntyre
Court Reporter

Thurs. 11/17/66
Nov. 2, 1966

Docket No. 28-66

DOCKET: EXAMINER HEARING - WEDNESDAY - NOVEMBER 16, 1966

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

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

CASE 3485: Application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through three injection wells located in Sections 8 and 9, Township 17 South, Range 33 East, Maljamar Pool, Lea County, New Mexico.

CASE 3486: Application of Shenandoah Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through four injection wells located in Sections 7, 8, and 16, Township 17 South, Range 33 East, Maljamar Pool, Lea County, New Mexico.

ir/

- j) Extend the West Mesa-Upper Queen Gas Pool to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
SECTION 12: W/2

- k) Extend the Milnesand-San Andres Pool to include therein:

TOWNSHIP 8 SOUTH, RANGE 35 EAST, NMPM
SECTION 28: NW/4

- l) Extend the North Osudo-Morrow Gas Pool to include therein:

TOWNSHIP 20 SOUTH, RANGE 36 EAST, NMPM
SECTION 19: S/2
SECTION 30: E/2

- m) Extend the Ranger Lake-Pennsylvanian Pool to include therein:

TOWNSHIP 12 SOUTH, RANGE 34 EAST, NMPM
SECTION 14: SW/4

- n) Extend the Shoe Bar-Pennsylvanian Pool to include therein:

TOWNSHIP 16 SOUTH, RANGE 35 EAST, NMPM
SECTION 26: NE/4

OVER

ir/

Docket No. 27-66

DOCKET: EXAMINER HEARING - WEDNESDAY - NOVEMBER 2, 1966

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 3479: Application of Gulf Oil Corporation for an exception to Rule 8 of Order No. R-1638 and to Rule 301, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 8 of Order No. R-1638 and to Rule 301 of the Commission rules and regulations to permit discontinuance of individual gas-oil ratio tests in its West Bisti-Lower Gallup Sand Unit, Bisti-Lower Gallup Pool, San Juan County, New Mexico. Applicant proposes to report gas production and ratios on a unit-wide basis rather than individual well GOR data.

CASE 3480: Application of Tidewater Oil Company for a capacity allowable, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-3097 which permitted its GO State "J" Well No. 1 located in Unit H of Section 7, Township 17 South, Range 33 East, Lea County, New Mexico, which directly offsets the Malmar Unit Waterflood Project, to be produced at capacity for a period not to exceed 90 days from date of said order. Applicant seeks additional time in which to produce said well at capacity and the establishment of an administrative procedure for further extensions.

CASE 3336 (Reopened)

In the matter of Case No. 3336 being reopened pursuant to the provisions of Order No. R-3005, which order established 80-acre spacing units for the East Hightower-Upper Pennsylvanian Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 3481: Application of Sinclair Oil & Gas Company for a non-standard gas proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the NW/4 of Section 7, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico, to be dedicated to its State 157 "B" Well No. 1 located at an unorthodox location for said pool 330 feet from the North line and 2310 feet from the West line of said Section 7.

CASE 3482: Application of Sinclair Oil & Gas Company for a special gas well test, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce and flare up to three million cubic feet of gas per day, for a maximum of 30 days, from its Hackberry Hills Unit Well No. 4 located in Unit F of Section 22, Township 22 South, Range 26 East, Eddy County, New Mexico, as a reservoir limit test to determine the economic feasibility of a pipeline connection to said well.

CASE 3483: Application of H. S. Moss for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the Wolfcamp formation in the interval from 9751 to 9850 feet in its D. P. Peck Well No. 1 located in Unit C of Section 26, Township 12 South, Range 37 East, Gladiola Field, Lea County, New Mexico.

CASE 3484: Application of Phillips Petroleum Company for a pilot waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the Grayburg-San Andres formation through its Santa Fe Well No. 14 located in Unit P of Section 20, Township 17 South, Range 35 East, Vacuum Field, Lea County, New Mexico.

CASE 3485: Application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through three injection wells located in Sections 8, and 9, Township 17 South, Range 33 East, Vacuum Field, Lea County, New Mexico.

CASE 3486: Application of Shenandoah Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through four injection wells located in Sections 7, 8 and 16, Township 17 South, Range 33 East, Vacuum Field, Lea County, New Mexico.

CASE 3487: Application of Amerada Petroleum Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of its State "SN" Unit Area comprising 692 acres, more or less, of State land in Sections 3 and 4, Township 15 South, Range 33 East, Lea County, New Mexico.

- CASE 3488: Application of Amerada Petroleum Corporation for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Saunders SB Waterflood Project by the injection of water into the Permo-Pennsylvanian zone through its Texaco-State "AQ" Well No. 2 located in Unit E of Section 3, Township 15 South, Range 33 East, Saunders Permo-Pennsylvanian Pool, Lea County, New Mexico.
- CASE 3489: Application of William A. and Edward R. Hudson for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand their Puckett A Waterflood Project by the injection of water into the Grayburg-San Andres formation through their Puckett A Well No. 30 to be drilled at an unorthodox location 1345 feet from the North line and 25 feet from the West line of Section 24, Township 17 South, Range 31 East, Maljamar Pool, Eddy County, New Mexico.
- CASE 3490: Application of Sunray DX Oil Company for pool redelineation, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the redelineation of the Todd-San Andres Pool, Roosevelt County, New Mexico, into two separate pools: The Todd Upper-San Andres Gas Pool comprising that portion of the San Andres formation above the anhydrite bed found at 4200 feet in the Franklin, Aston and Fair Mark Federal Well No. 1 located in Unit M of Section 26, Township 7 South, Range 35 East, and the Todd Lower-San Andres Pool comprising that portion of the San Andres formation below said anhydrite bed, said Todd Lower-San Andres Pool to be governed by the existing rules for the present Todd-San Andres Pool. Also to be considered at said hearing will be such matters as the effective date of the aforesaid redelineation, the period of time in which to effect dual completion of the affected wells, the distribution of the affected wells' accumulated status in the present pool (overproduction and underproduction) to each of the new pools, and such other pertinent matters as may relate to the aforesaid pool redelineation. Also to be considered will be special pool rules for the proposed Todd Upper-San Andres Gas Pool, including 320-acre spacing for wells located therein.

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
PHILLIPS PETROLEUM COMPANY FOR
APPROVAL OF A WATERFLOOD PROJECT, LEA
COUNTY, NEW MEXICO

A P P L I C A T I O N

Comes now Phillips Petroleum Company and applies to the Oil Conservation Commission of New Mexico for approval of a water-flood project of the ^{San Andres} Grayburg Formation underlying its Phillips State "D" and Phillips State "E" leases, Sections 8 and 9, Township 17 South, Range 33 East, Lea County, New Mexico, and in support thereof would show:

1. Applicant proposes to convert its State "E" Well No. 2 and its State "D" Wells No. 3 and No. 4 to water injection upon approval of this application. The Applicant also requests that procedure be included in any order entered, granting provision for administrative approval to convert its State "E" Well No. 4 to water injection at some future date. The proposed injection wells are presently producing wells in the Grayburg ^{San Andres} Formation.

2. Attached hereto are the following exhibits:

- (a) A plat showing the proposed injection wells, the location of all other wells within a radius of two miles from the proposed injection wells showing the formation from which said wells are producing or have produced, together with the names of the lessees to the best of Applicant's information and belief.
- (b) Logs of the proposed injection wells.
- (c) Diagrammatic sketch of proposed injection wells showing casing strings and other pertinent information.

3. Injection will be into the Grayburg Formation at an approximate interval of 4100 feet to 4400 feet. Water to be injected will be obtained from Continental Oil Company, whose water supply is the Ogallala Formation. Water will be injected at an estimated rate of 300 barrels per well per day at a maximum

pressure of 3000 psi.

4. In conformity with the requirements of Rule 701 the New Mexico State Engineer is being notified of this application by furnishing him with a copy of the application, together with all exhibits attached.

WHEREFORE, Applicant prays that this application be set for hearing before the Commission's duly appointed examiner, and that after notice and hearing as required by law the Commission enter its order approving the waterflood project as proposed.

Respectfully submitted,

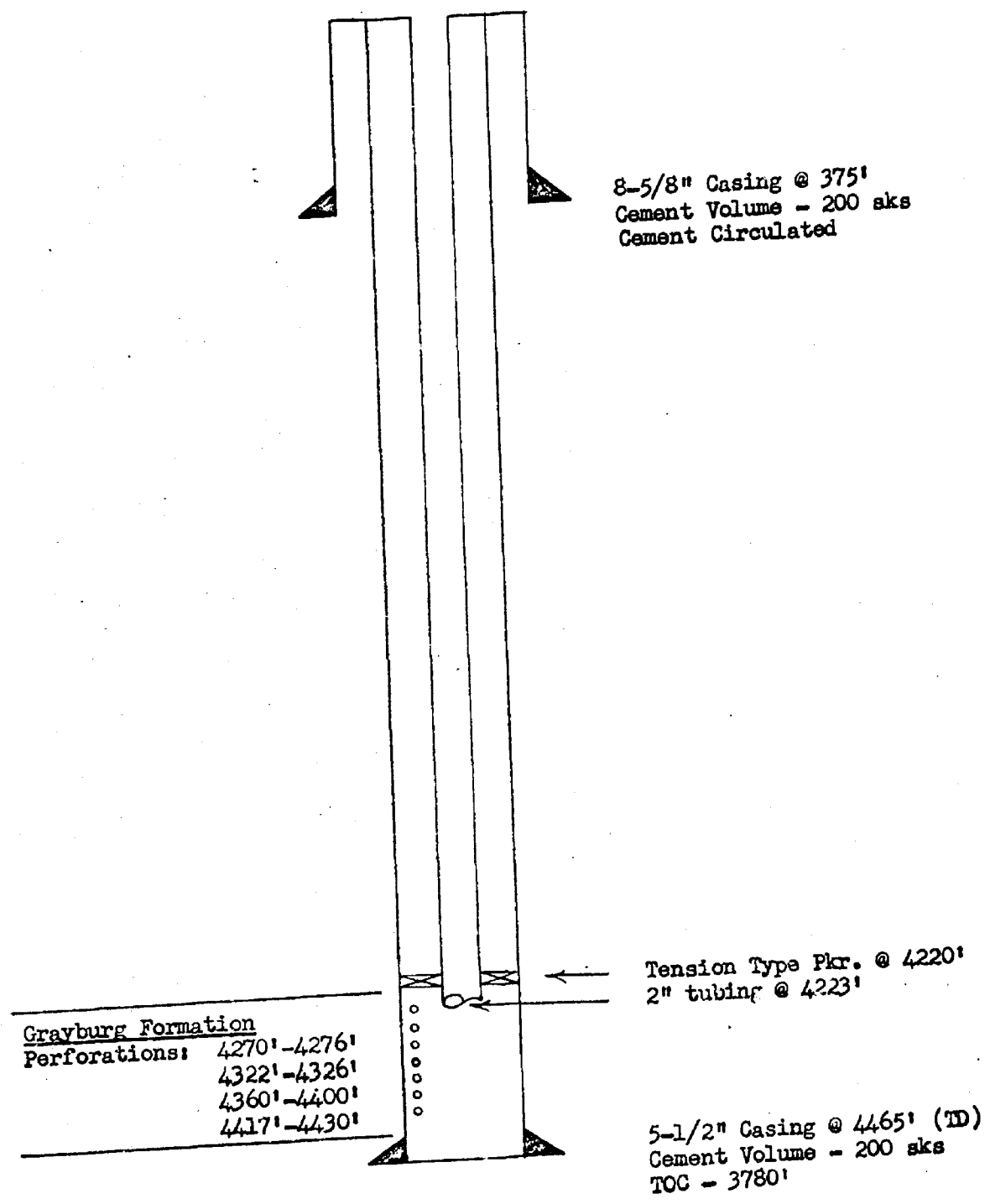
PHILLIPS PETROLEUM COMPANY

BY: Jason W. Kellahin
KELIAHIN & FOX
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO
ATTORNEYS FOR APPLICANT

DOCKET IN 12224

Date 11-4-66
For 11-16-66

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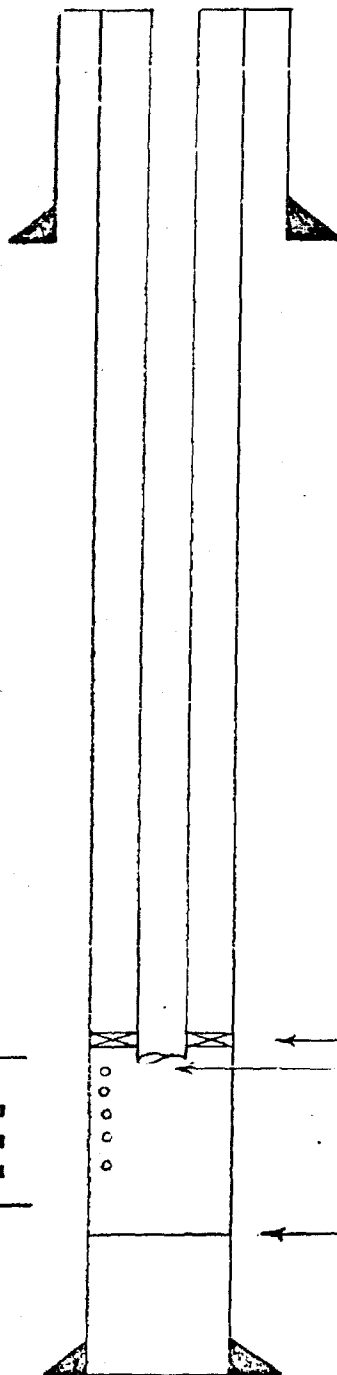


PHILLIPS PETROLEUM COMPANY
 STATE "E" - WELL NO. 2

1980' FSL, 1980' FEL, Section 8, T-17-S, R-33-E, Lea County, New Mexico

3485

Grayburg Formation
Perforations: 4332'-4336'
4384'-4388'
4420'-4426'



3-5/8" Casing @ 295'
Cement Volume - 185 sks
Cement Circulated

Tension Type Pkr. @ 4280'
2" tubing @ 4283'

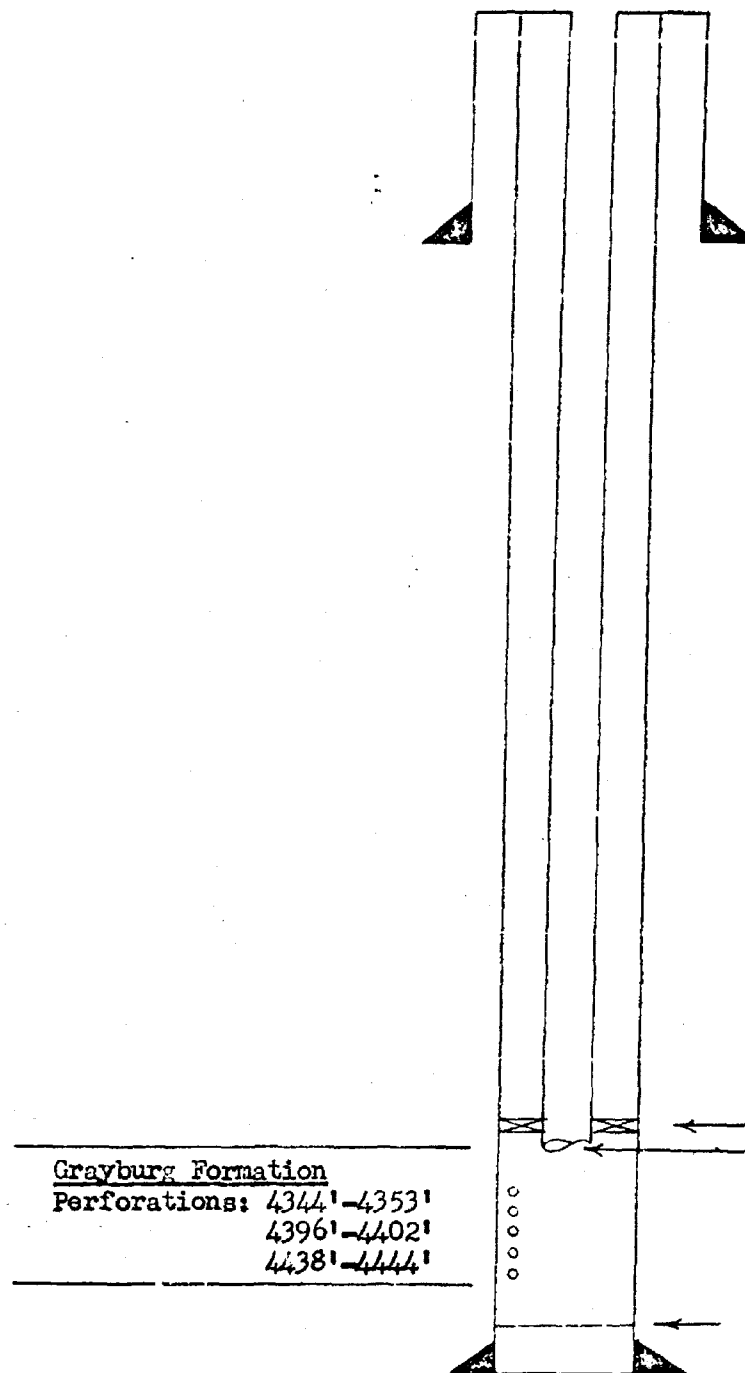
4430' PBD

5-1/2" Casing @ 4435' (TD)
Cement Volume - 50 sks
TOC 4089' Calc.

PHILLIPS PETROLEUM COMPANY
STATE "D" - WELL NO. 3

660' FSL, 1980' FWL, Section 9, T-17-S, R-33-E, Lea County, New Mexico

2455



8-5/8" Casing @ 302'
Cement Volume - 200 sks
Cement Circulated

Grayburg Formation
Perforations: 4344'-4353'
4396'-4402'
4438'-4444'

Tension Type Pkr. @ 4290'
2" tubing @ 4293'

4448' PBTD
5-1/2" Casing @ 4450' (TD)
Cement Volume - 100 sks
TOC 3758' Calc.

PHILLIPS PETROLEUM COMPANY
STATE "D" - WELL NO. 4

1980' FSL, 1980' FWL, Section 9, T-17-S, R-33-E, Lea County, New Mexico

3855

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
November 16, 1966

IN THE MATTER OF:

Application of Phillips
Petroleum Company for a waterflood
project, Lea County, New Mexico

Case No. 3485

BEFORE: DANIEL S. NUTTER, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The Hearing will come to order, please.

The first case this morning will be Case 3485.

MR. HATCH: Case 3485, application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin of Kellahin and Fox of Santa Fe, appearing for the applicant. I have one witness I would like to have sworn, please.

(Witness sworn)

* * *

W. C. F R E D E R I C K S, a witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A W. C. Fredericks.

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

A Phillips Petroleum Company, as an Associate Reservoir Engineer.

Q Have you ever testified before the Oil Conservation Commission?

A I have not.

Q For the benefit of the Examiner, would you briefly review your education and experience as a Petroleum Engineer?

A I graduated from the University of Tulsa in 1953 with a BS in Petroleum Engineering. I have worked -- excuse me -- thirteen years for Phillips Petroleum Company. I was two years out for duty in the Armed Forces. I spent a year and a half in Big Spring, Texas, six and a half years in Cut Bank, Montana, three-quarters of a year in Oklahoma City, and since then I have been in Bartlesville, Oklahoma.

I have been in charge of designing production equipment, supervising pipe line and corrosion surveys, designing pipeline stations, conducting reservoir surveys and designing injection equipment, and I am presently serving on seven engineering committees and chairman of one. Also perform analysis work for acquisitions and sale properties.

Q In connection with your duties with Phillips Petroleum Company, is the area involved in Case Number 3485 under your jurisdiction?

A Yes, it is.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: They are, please proceed.

Q (By Mr. Kellahin) Mr. Frederick\$, are you familiar with the application of Phillips Petroleum Company in Case 3485?

A I am.

Q Would you state briefly what Phillips proposes in this application?

A Phillips requests that we be permitted to convert three wells to water injection, in order to waterflood our Phillips State D and Phillips State E leases.

Q Now, is that area unitized?

A Not the immediate area that we are talking about, there are units in the general area, but these two leases will not be unitized.

MR. KELLAHIN: Would you mark these, please?

MR. NUTTER: They have not been marked?

(Whereupon, Applicant's Exhibits
1 through 8 marked for
identification.)

Q (By Mr. Kellahin) Mr. Fredericks, referring to what has been marked as Exhibit Number 1, would you identify that exhibit please?

A It is a plat of the area showing three wells, those that we request to be converted to water injection in red.

Q Is the area involved in this waterflood project offset by waterfloods?

A Yes, it is. The leases to the south and to the west are under flood now.

Q Now, there is another case on the docket today, Application of Shenandoah Oil Corporation, is it in any way

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PAGE

5

connected with the application of Phillips Petroleum Company?

A Yes, it is. We have worked out a cooperative agreement with Shenandoah Oil Corporation whereby we will convert certain wells in exchange for their converting certain wells, and with the completion of these conversions, the -- generally speaking, the entire area will then be under flood.

Q Now, what is the footage location of the wells, the injection wells, Mr. Fredericks?

A Phillips State D Number 4 is located 1980 from the south line and 1980 from the west line of Section 9, Township 17 South, Range 33 East, Lea County, New Mexico. Phillips State D Number 3 is located 660 feet from the south line, 1980 feet from the west line, Section 9, Township 17 South, Range 33 East, Lea County, New Mexico.

And Phillips State E Number 2 is located 1980 feet from the south line, 1980 feet from the east line, Section 8, Township 17 South, Range 33 East, Lea County, New Mexico.

Q Now, referring to what has been marked as Exhibits 2, 3, and 4, would you identify those, please?

A They are diagramatic sketches of the wells that we are requesting to be converted to water injection.

Q Now, you propose, according to these sketches, to

inject the water through tubing and under a packer, is that correct?

A That is correct.

Q Will the space in the annulus be filled with any kind of fluid?

A We will fill the annular space with a non-corrosive fluid.

Q Will that have a gauge on it to show whether leakage is occurring?

A Yes, we will either install a permanent gauge or take periodic pressure tests with a gauge.

Q Now, what is the source of water that you will use in this waterflood project?

A We are going to purchase water from Continental Oil Company, whose water source is the Ogallala.

Q Is that a fresh water?

A Yes, it is.

Q In your opinion, is it non-corrosive?

A Yes, sir.

Q Now, what volume of water do you propose to inject?

A We intend to inject approximately 300 barrels of water per day per well at 2800 -- 2800 to 3,000 pounds pressure.

Q That will be your maximum pressure, is that correct?

A The maximum pressure will be 3,000 pounds.

Q In what formation will you inject the water into?

A Into the Grayburg-San Andres formation.

Q At approximately what depth do you propose to inject?

A From approximately 4100 feet to 4450 feet.

Q Now, as this flood progresses, would you anticipate reinjecting produced water?

A Yes, we will.

Q How will that be handled?

A The water will be commingled at the tank battery and then reinjected in a commingled manner.

Q Will it be treated in any manner?

A Corrosion tests will be conducted and the water treated as necessary.

Q Now, will this be a pilot project or a full-scale flood or what is the nature of the project?

A This will be a full-scale flood with the possible exception of one additional well being converted at a later date.

Q Your application asks for administrative procedure for approval of your State E Number 4 well, for injection, is this correct?

A That is correct.

Q And is this the well you were mentioning the

possibility of it being converted at a later date?

A Yes. We may want to convert State E -- Phillips State E Number 4 at a later date if we can work out a satisfactory cooperative agreement with the lease to the south.

Q Now, in the event this cooperative agreement is worked out with the lease to the south, would it be necessary to convert the well to protect Phillips' interest prior to any response on this well or any offsetting well?

A It is possible because the lease to the south is already experiencing stimulation and it may be necessary to work out an agreement with them before this well experiences stimulation or our lease experiences stimulation.

Q Then you would need an exception to the provision of Rule 701 --

A Yes, we would.

Q -- for that purpose. Now, referring to what have been marked as Exhibits 5 and 6, would you identify those exhibits?

A Exhibits 5 and 6 are cross-sections through the Phillips State D and Phillips State E lease, log cross-sections through those two leases. They are marked Cross-Sections AA and BB, and are identified as such under Exhibit Number 1.

Q Now, on the basis of these cross-sections, in your opinion, is the formation continuous across the proposed flood area?

A Yes, it is.

Q In your opinion, is it acceptable as a successful waterflood?

A Yes, it is. It has already been proved successful in the area.

Q Now, referring to what have been marked as Exhibits 7 and 8, would you identify those exhibits?

A These are decline curves of the monthly production since the inception of each lease.

Q Exhibit Number 7, is that the declining curve on your State D lease?

A I guess.

Q And Exhibit Number 8, then, covers this State E lease? Correct?

A Yes.

Q Now, on the basis of the production history of these two leases, in your opinion, is the Phillips property substantially depleted on primary?

A Yes, it is. I estimate that it is -- 91 per cent of the primary reserves have been produced.

Q You consider that a stripper stage at this point on

primary production?

A Yes, I would.

Q Were Exhibits 1 through 8 prepared by you or under your supervision?

A Yes, they were.

Q Now, in addition to these exhibits, did you file with the application, with the Commission, logs of your injection wells?

A Yes, we did.

MR. KELLAHIN: At this time, I offer in evidence Exhibits 1 through 8 conclusive.

MR. NUTTER: Applicant's Exhibits 1 through 8 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 through 8 offered and admitted in evidence.)

Q (By Mr. Kellahin) Now, Exhibits 2, 3, and 4 being the diagramatic sketches are the same as those filed with the application, are they not?

A Yes, they are duplicates of those filed with the application.

Q A copy of these were furnished to you after the application had already been furnished to the office of the State Engineer, is that correct?

A Not all these exhibits, no.

Q The decline curves were not furnished?

A The decline curves were not furnished.

Q Nor the cross-sections?

A Nor the cross-sections, that's right. Exhibits 5 and 6, 7 and 8 were not furnished with the initial application.

Q But the other exhibits were all furnished to the State Engineer?

A Yes.

MR. KELLAHIN: If the Examiner please, I believe the record will show a letter from the office of the State Engineer, stating there is no objection to the proposed waterflood project by Phillips, since it is agreed as proposed.

MR. NUTTER: We do have that letter dated October 14th, Mr. Kellahin.

MR. KELLAHIN: That's all I have on direct examination.

MR. NUTTER: Are there any questions of the witness?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Fredericks, I missed it when you were describing the tubing in these injection wells. Is this going to be coated tubing?

A We would plan on conducting tests and if necessary coating it, but we had not planned on coating it at this time.

Q Well, now, your proposal is to inject fresh water initially, is that correct?

A Yes, that is correct.

Q Will you produce this water or will you purchase it?

A We will purchase it.

Q From one of the water companies in the area, I presume?

A We're going to purchase it from Continental Oil Company.

Q Oh, I see. Do they operate a flood in the vicinity or what?

A Yes, they operate a flood to the south of us and have a large water supply with a little access available.

Q And as you produce water, later on you will treat it as necessary, commingle it with fresh water and reinject it?

A That is true.

Q Now, the annulus is to be filled with inert fluid. Do you have any idea what you will be using there?

A It will either be treated water or oil.

Q I see.

A We're not certain at this time.

Q I see. And a gauge on the surface?

A The gauge may be just one that the pumper takes with him and runs weekly or periodic tests with, but it will be -- the pressure will be measured.

Q On the --

A Anulus.

Q -- anulus. I see.

A Yes.

Q Now, you have stated that you thought these leases were approximately 91 per cent depleted as far as primary is concerned. What has been the cumulative primary production on the two leases?

A Approximately 320,000 barrels. I have the exact -- 343,000 barrels -- excuse me.

Q That's the total for the two leases?

A Yes.

Q And what is your estimate of secondary recovery here?

A 228,000 barrels.

Q Total for both leases?

A Correct.

Q Now, I notice on two of the wells, you give the

top of the cement on the five and one-half inch casing as being calculated, the third one, it doesn't say calculated; was that an actual measurement of the top of the cement? That is on Exhibit 3, E Number 2?

A I believe it was an omission and should have indicated calculated.

Q That was calculated, too.

MR. NUTTER: Okay. Are there any further questions of Mr. Fredericks? He may be excused.

(Witness excused.)

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

MR. KELLAHIN: No, I haven't, Mr. Nutter.

MR. NUTTER: Does anyone have anything they wish to offer in Case 3485?

We will take the case under advisement.



I N D E X

WITNESS	PAGE
W. C. FREDERICKS	
Direct Examination by Mr. Kellahin	2
Cross Examination by Mr. Nutter	11

E X H I B I T S

NUMBER	MARKED FOR IDENTIFICATION	OFFERED	ADMITTED
1 through 8	4	10	10

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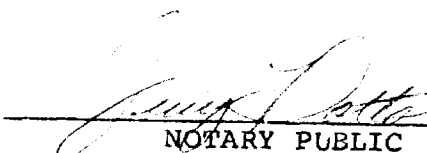
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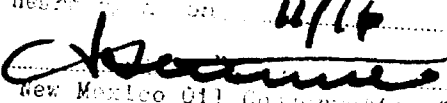
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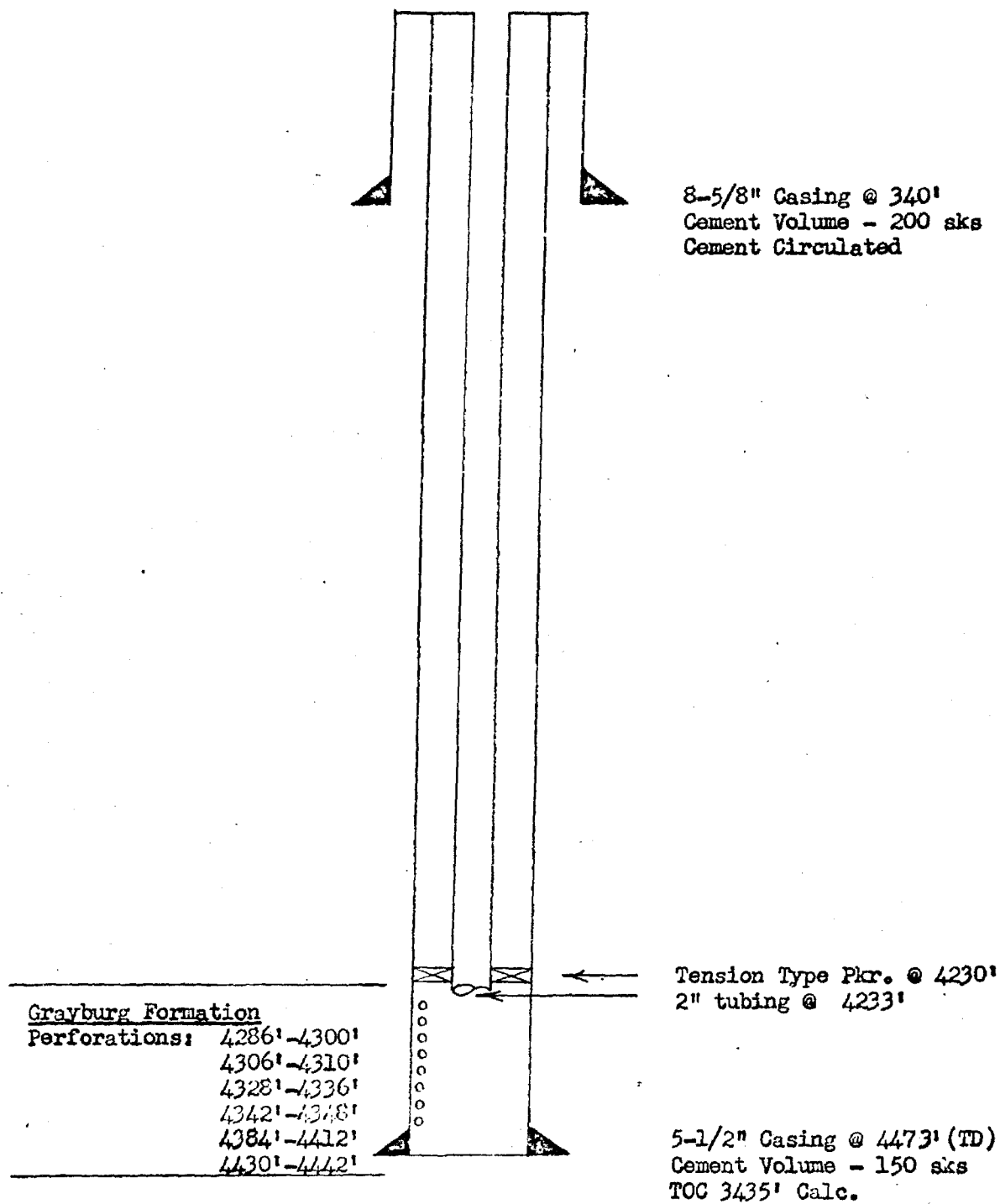
I, JERRY POTTS, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings,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

WITNESS MY HAND AND SEAL this 4th day of December, 1966.


NOTARY PUBLIC

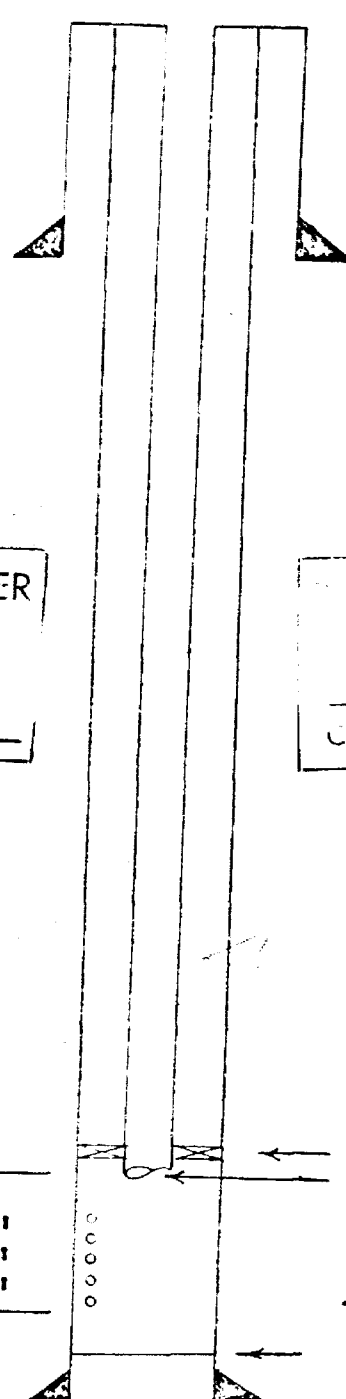
My Commission Expires:
July 10, 1970

I do hereby certify that the foregoing is
a complete record of the proceedings in
the hearing of Case No. 3485
heard on 11/16 1966

Examiner
New Mexico Oil Conservation Commission



PHILLIPS PETROLEUM COMPANY
 STATE "E" - WELL NO. 4

660' FSL, 660' FEL, Section 8, T-17-S, R-33-E, Lea County, New Mexico



8-5/8" Casing @ 302'
Cement Volume - 200 sks
Cement Circulated

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

EXHIBIT NO. 2

CASE NO. 3475

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

CASE NO. _____

will purchase fresh water from

will fill with fresh water

Grayburg Formation

Perforations: 4344'-4353'

4396'-4402'

4438'-4444'

Tension Type Pkr. @ 4290'
2" tubing @ 4293'

4448' PBTD

5-1/2" Casing @ 4450' (TD)

Cement Volume - 100 sks

TOC 3758' Calc.

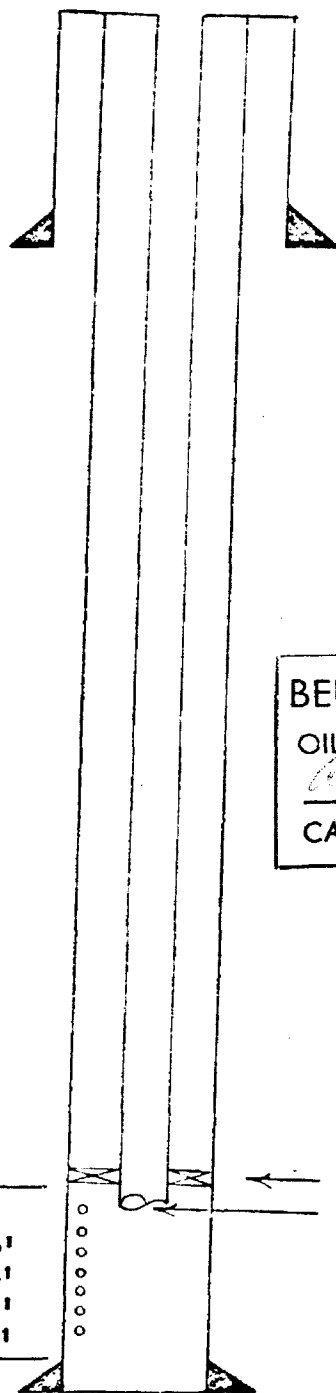
PHILLIPS PETROLEUM COMPANY
STATE "D" - WELL NO. 4

1980' FSL, 1980' FWL, Section 9, T-17-S, R-33-E, Lea County, New Mexico

4344

4290

54



8-5/8" Casing @ 375'
Cement Volume - 200 sks
Cement Circulated

BEFORE EXAMINER NUTTED
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 3475

Grayburg Formation
Perforations: 4270'-4276'
4322'-4326'
4360'-4400'
4417'-4430'

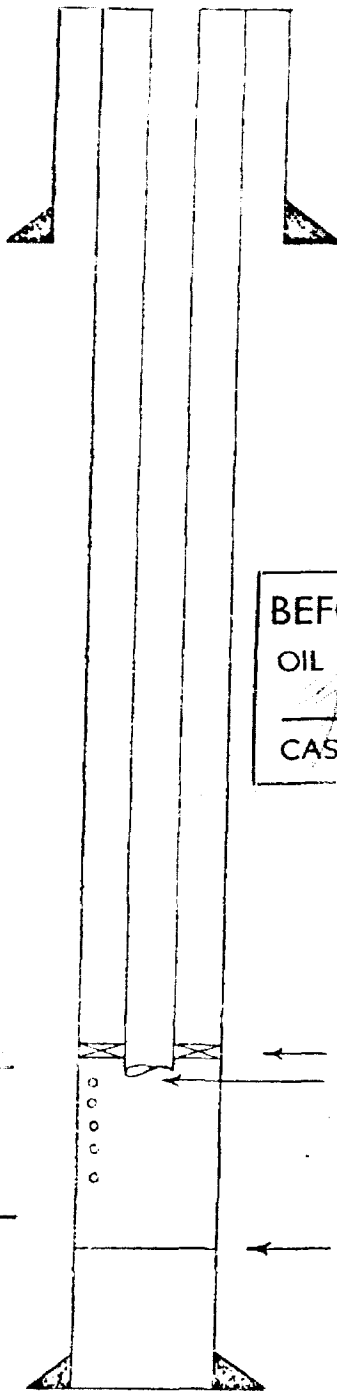
Tension Type Plcr. @ 4220'
2" tubing @ 4223'

5-1/2" Casing @ 4465' (TD)
Cement Volume - 200 sks
TOC - 3780'

PHILLIPS PETROLEUM COMPANY
STATE "E" - WELL NO. 2

1980' FSL, 1980' FEL, Section 8, T-17-S, R-33-E, Lea County, New Mexico





8-5/8" Casing @ 295'
 Cement Volume - 185 sks
 Cement Circulated

BEFORE EXAMINER NUTTER
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. 4
 CASE NO. 3482

Grayburg Formation
 Perforations: 4332'-4336'
 4384'-4388'
 4420'-4426'

Tension Type Pkr. @ 4280'
 2" tubing @ 4283'

4430' PBTD

5-1/2" Casing @ 4435' (TD)
 Cement Volume - 50 sks
 TOC 4089' Calc.

PHILIP PETROLEUM COMPANY
 STATE "D" - WELL NO. 3

660' FSL, 1980' FWL, Section 9, T-17-S, R-33-E, Lea County, New Mexico

2552
 4280
 52