

CASE 4125: Appli. of CONTINENTAL
OIL CO. FOR A WATERFLOOD PROJECT,
EDDY COUNTY, NEW MEXICO.

Case Number.

4125

Application

Transcripts.

Small Exhibits

ETC.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

May 20, 1969

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

Dear Sir:

Enclosed herewith is Commission Order No. R-3756, entered in Case No. 4125, approving the Continental Levers Forest, Heard Forest, and Donohue Waterflood Projects.

Injection is to be through the ten authorized water injection wells which shall be equipped with cement-lined tubing set in a packer located within 100 feet of the casing shoe, except the Donohue No. 3 in which the packer shall be set at 1900 feet, and the Levers No. 1 in which the packer shall be set at 2400 feet; also the Donohue No. 4 which is to be drilled 1930 feet from the North line and 1650 feet from the West line of Section 35, Township 16 South, Range 29 East, shall be equipped with 7 5/8-inch casing set at approximately 400 feet, cement circulated to the surface, and 3 1/2-inch casing set at approximately 2700 feet, cement circulated at lease back into the surface pipe. Injection in this one well in the project may be down the casing.

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 Levers project will be eligible to receive under the provisions of Rule 701-E-3 is 518 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less, while the maximum for the Heard project is 210 barrels and the maximum for the Donohue project is 126. Upon unitization the entire consolidated project will be eligible to receive an allowable of 854 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 87501

-2-

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

R-3756

May 20, 1969

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P
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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/DSN/ir

cc: Oil Conservation Commission offices in Hobbs and Artesia, N.M.

U. S. Geological Survey, Artesia, New Mexico

Mr. D. E. Gray, State Engineer Office, Santa Fe, New Mexico

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. 4125
Order No. R-3756

APPLICATION OF CONTINENTAL OIL COMPANY
FOR A WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 7, 1969,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 20th day of May, 1969, 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, Continental Oil Company, seeks
permission to institute three waterflood projects in the Forest
Pool by the injection of water into the Grayburg and San Andres
formations through ten injection wells in Sections 34 and 35,
Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico.

(3) That the applicant further seeks an administrative
procedure whereby said projects could be expanded to include
additional lands and injection wells in the areas of said
projects as may be necessary in order to complete efficient
injection patterns; 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. 4125
Order No. R-3756

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

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

(6) That the subject application should be approved and the projects 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, Continental Oil Company, is hereby authorized to institute the three following waterflood projects in the Forest Pool by the injection of water into the Grayburg and San Andres formations through the following-described ten wells in Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico:

Continental Forest Levers Waterflood Project

Injection Wells:

Levers "B" Well No. 3 - Unit B - Section 34
Levers "B" Well No. 14 - Unit F - Section 34
Levers "B" Well No. 1 - Unit H - Section 34
Levers "B" Well No. 10 - Unit N - Section 34
Levers "B" Well No. 8 - Unit P - Section 34
Levers "B" Well No. 4 - Unit D - Section 35

Continental Forest Donahue Waterflood Project

Injection Wells:

Donahue Well No. 3 - Unit J - Section 34
Donahue Well No. 4 - to be drilled in Unit F -
Section 35

-3-

CASE No. 4125
Order No. R-3756

Continental Forest Heard Waterflood Project

Injection Wells:

Heard Well No. 1 - Unit L - Section 35
Heard Well No. 4 - Unit N - Section 35

(2) That the subject waterflood projects 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 subject waterflood projects to include such additional lands and injection wells in the areas of said projects as may be necessary to complete efficient water injection patterns; 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; further, that the Secretary-Director may consolidate the three projects into a single project upon unitization of the area involved.

(3) That monthly progress reports of the waterflood projects 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

DAVID F. CARGO, Chairman

ALEX J. ARMISTEAD, Member

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

esr/

Docket No. 13-69

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 7, 1969

9 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 4119: Application of Union Oil Company of California to directionally drill, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill its Owens Well No. 1 located 1980 feet from the North and East lines of Section 34, Township 14 South, Range 35 East, Lea County, New Mexico. Said well was drilled to a total depth of 11,199 feet and plugged back to approximately 9,000 feet. Applicant proposes to set a whipstock at approximately 9,000 feet and to directionally drill to a depth sufficient to bottom said well in the Lower Hueco formation at a point approximately 2298 feet from the North line and 1662 feet from the East line of said Section 34 (approximately 450 feet Southeast of the surface location.)

CASE 4120: Application of Sam Boren for the creation of a new gas pool, promulgation of special rules for the pool, a dual completion, and commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Wolfcamp gas pool for his Crowley State "A" Well No. 1 located in Unit L of Section 5, Township 12 South, Range 33 East, Lea County, New Mexico, and for the promulgation of special rules therefor, including a provision for 320-acre proration units. Applicant also seeks approval of the dual completion of said well to produce gas through the casing-tubing annulus from the aforesaid Wolfcamp pool and oil through tubing from the North Bagley-Lower Pennsylvanian Pool, commingling the liquid hydrocarbons from said pools on the lease. Applicant further seeks authority to commingle in the well-bore sufficient Wolfcamp gas to gas lift the Pennsylvanian oil.

CASE 4121: Application of Roger C. Hanks for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Bar U-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units and the assignment of 80-acre allowables.

CASE 4122: Application of Roger C. Hanks for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian

Docket No. 13-69
Examiner Hearing - May 7, 1969
-2-

(Case 4122 continued)

formation in the interval from approximately 12,878 feet to 13,011 feet in his Atlantic Tebworth Well No. 1 located in the SW/4 SW/4 of Section 25, Township 8 South, Range 36 East, Allison Field, Roosevelt County, New Mexico.

CASE 4123: Application of Kersey and Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier and Lovington sands of the Grayburg formation through its Dublin Well No. 3 located in the NW/4 NE/4 of Section 3, Township 17 South, Range 29 East, Square Lake Pool, Eddy County, New Mexico.

CASE 3405: (Reopened) - TO BE CONTINUED TO MAY 21, 1969

In the matter of Case No. 3405 being reopened pursuant to the provisions of Order No. R-3081, which order established 640-acre spacing for the North Indian Hills-Morrow Gas Pool, Eddy County, New Mexico, for a period of one year after first pipeline connection in the pool. All interested parties may appear and show cause why said pool should or should not be developed on 320-acre spacing units.

CASE 4124: Application of Amerada Petroleum Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the State H "A" COM Unit Area comprising 1,281 acres, more or less, of State lands in Sections 18, 19, and 30 of Township 14 South, Range 35 East, Lea County, New Mexico.

CASE 4125: Application of Continental Oil Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the San Andres formation through ten wells in Sections 34 and 35, Township 16 South, Range 29 East, Forest-San Andres Pool, Eddy County, New Mexico.

CASE 4126: Application of Curtis Hankamer for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the applicant's wells located in Sections 12, 13, 14, and 24, Township 26 South, Range 29 East, Brushy-Draw Delaware Pool, Eddy County, New Mexico. Applicant seeks

Docket No. 13-69

Examiner Hearing - May 7, 1969

-3-

(Case 4126 continued)

authority to continue to dispose of salt water produced by said wells in four unlined surface pits.

CASE 4127: Application of Curtis Hankamer for an exception to Order No. R-3221, as amended, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for applicant's two wells located in Section 11, Township 24 South, Range 32 East, Double X-Delaware Pool, Lea County, New Mexico. Applicant seeks authority to continue to dispose of salt water produced by said wells in two unlined surface pits.

CASE 4128: Application of C. O. Fulton for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier and Lovington sands of the Grayburg formation through one well located in Unit D of Section 2, and two wells in Units D and P of Section 3, Township 17 South, Range 29 East, Square Lake Pool, Eddy County, New Mexico.

CASE 4117: (Continued from the April 23, 1969 Examiner Hearing)
Application of Eastern Petroleum Company for special pool rules, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the Rattlesnake-Dakota Pool, San Juan County, New Mexico, permitting the drilling of wells on 2½-acre spacing provided that no well be located nearer than 50 feet to the outer boundary of the quarter-quarter section and no nearer than 165 feet to another well producing from the same pool, and provided further, that a 40-acre proration unit would be subject to a 40-acre allowable regardless of the number of wells on the unit.

CASE 4118: (Continued from the April 23, 1969 Examiner Hearing)

Application of Dugan Production Corporation for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle gas production from undesignated Fruitland and Pictured Cliffs gas pools in the well-bore of its Federal "I" Well No. 4, located in the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West, San Juan County, New Mexico.

Docket No. 13-69
Examiner Hearing - May 7, 1969

-4-

CASE 4129: Application of Redfern Development Corporation for gas commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Devils Fork-Gallup gas and Basin-Dakota gas after separately metering the Dakota gas and determining the Gallup production by means of the subtraction method. Said production is from the dually completed Largo Spur Well No. 1 located in Unit J of Section 18, Township 24 North, Range 6 West, Rio Arriba County, New Mexico.



CONTINENTAL OIL COMPANY

P. O. Box 460
HOBBS, NEW MEXICO 88240

PRODUCTION DEPARTMENT
HOBBS DIVISION
L. P. THOMPSON
Division Manager
G. C. JAMIESON
Assistant Division Manager

1001 NORTH TURNER
TELEPHONE 393-4141

April 11, 1969

SWA Case 4125

✓ New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

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

Re: Application to Install Waterflood -
Forest Pool - Eddy County, New Mexico

Gentlemen:

Forwarded herewith in triplicate is our application for authority to install a waterflood in the Forest Pool located in Eddy County, New Mexico. Please set this matter on your docket for hearing on May 7, 1969.

Yours very truly,

G. C. Jamieson

VTL-JS

RLA JJB JWK
Attach

DOCKET MARKED

Date 4-23-69

PIONEERING IN PETROLEUM PROGRESS SINCE 1875

ROUGH DRAFT FOR WATERFLOOD LETTERS

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

*Heard Forest, and
Donahue Forest*

Enclosed herewith is Commission Order No. R-3756, entered in Case No. 4125, approving the *Continental River Forest, ~~Donahue Forest~~* Waterflood Projects.

Injection is to be through the ten authorized water injection wells which shall be equipped with cement-lined tubing set in a packer located within 100 feet of the casing shoe except the Donahue No. 3 in which the packer shall be set at 1900 feet and the Levea B No. 1 in which the packer shall be set at 2400 feet. Donahue No. 4 which is to be drilled 1980 ~~feet~~ and feet FNL and 1650 feet FWL of 35-16-29 shall be equipped with 3-inch casing set at approximately 400 feet, cement circulated to
As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which ~~this~~ ^{the project} will be eligible to receive under the provisions of Rule 701-E-3 is 518 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less, *while the maximum for the Heard project is 210 barrels and the maximum for*
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.

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

cc: OCO: Hobbs x
Artesia x
Aztec

USGS Artesia

Mr. Frank Irby, State Engineer Office, Santa Fe, New Mexico
Mr. D. E. Gray

the surface, and 3 1/2-inch casing set at approximately 2700 feet, cement circulated at least back into the surface pipe. Injection in this one well in the project may be down the casing,

Donahue project is in. Upon unitization the initial calculated project limit be slightly to receive an allowance of 85+ barrels per day.

Company, Lease
and Well No.
CONTINENTAL OIL COMPANY

FOREST POOL INFLECTION WELL DATA

EXHIBIT NO. 2

	Total Depth and/or PBD	SURFACE CASING			PRODUCTION CASING			PRODUCING INTERVAL Perforations/OH
		Size	Depth	Cement	Size	Depth	Cement	
E. C. Donohue No. 3 1650' FSL & FEL Sec. 34-16-29	2633'	8 5/8"	355'	Mudded In	7"	2450'	100	OH 2450'-2633'
Levers B No. 1 1980' FSL & 660' FEL Sec. 34-16-29	3028'/2675'	8 1/4"	402'	50	5 1/2"	2650'	75	Perf. 2360-63' & OH 2650'-2675'
Levers B No. 3 660' FSL & 1980' FEL Sec. 34-16-29	3040'	8 5/8"	388'	50	5 1/2"	2360'	50	OH 2360'-3040'
Levers B No. 4 660' FSL & FSL Sec. 35-16-29	3200'/3090'	8 5/8"	418'	50	5 1/2"	2520'	100	OH 2520'-3090'
Levers B No. 8 660' FSL & FEL Sec. 34-16-29	2651'	8 1/4"	389'	50	7"	2477'	100	Perf. 5 1/2" liner 2505-30' & OH 2530'-2561'
Levers No. 10 330' FSL & 2310' FSL Sec. 34-16-29	2610'	8"	380'	Mudded In	7"	2382'	100	OH 2382'-2610'
Levers No. 14 2310' FSL & FSL Sec. 34-16-29	2646'	8 5/8"	380'	50	5 1/2"	2415'	100	OH 2415'-2646'
Heard No. 1 2120' FSL & 520' FSL Sec. 35-16-29	2683'	8 1/2"	395'	50	7"	2498'	125	OH 2498'-2683'
Heard No. 4 900' FSL & 1651' FSL Sec. 35-16-29	2663'	10 3/4"	409'	Casing Pulled	7"	2493'	620	OH 2493'-2663'
Donohue No. 4 (To be drilled) 1650' FSL & 1980' FSL Sec. 35-16-29	2700'	7 5/8"	400'	185	3 1/2"	2700'	400	To be perforated from log

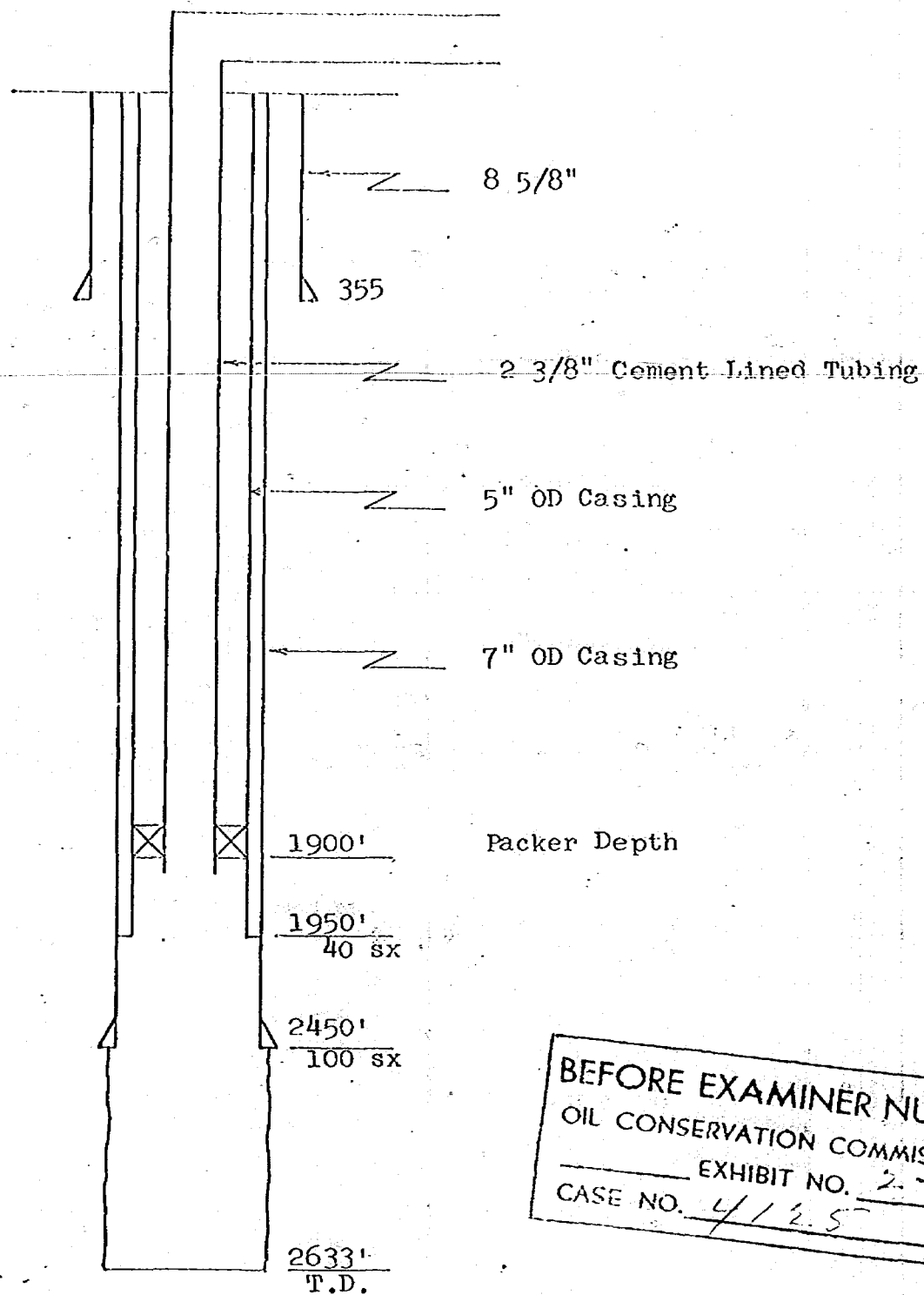
BEFORE EXAMINER NOTAR

OIL CONSERVATION COMMISSION

EXHIBIT NO. 2

CASE NO. 4125

Continental Oil Company
Donohue No. 3
1650' FEL & SL Sec. 34-16-29

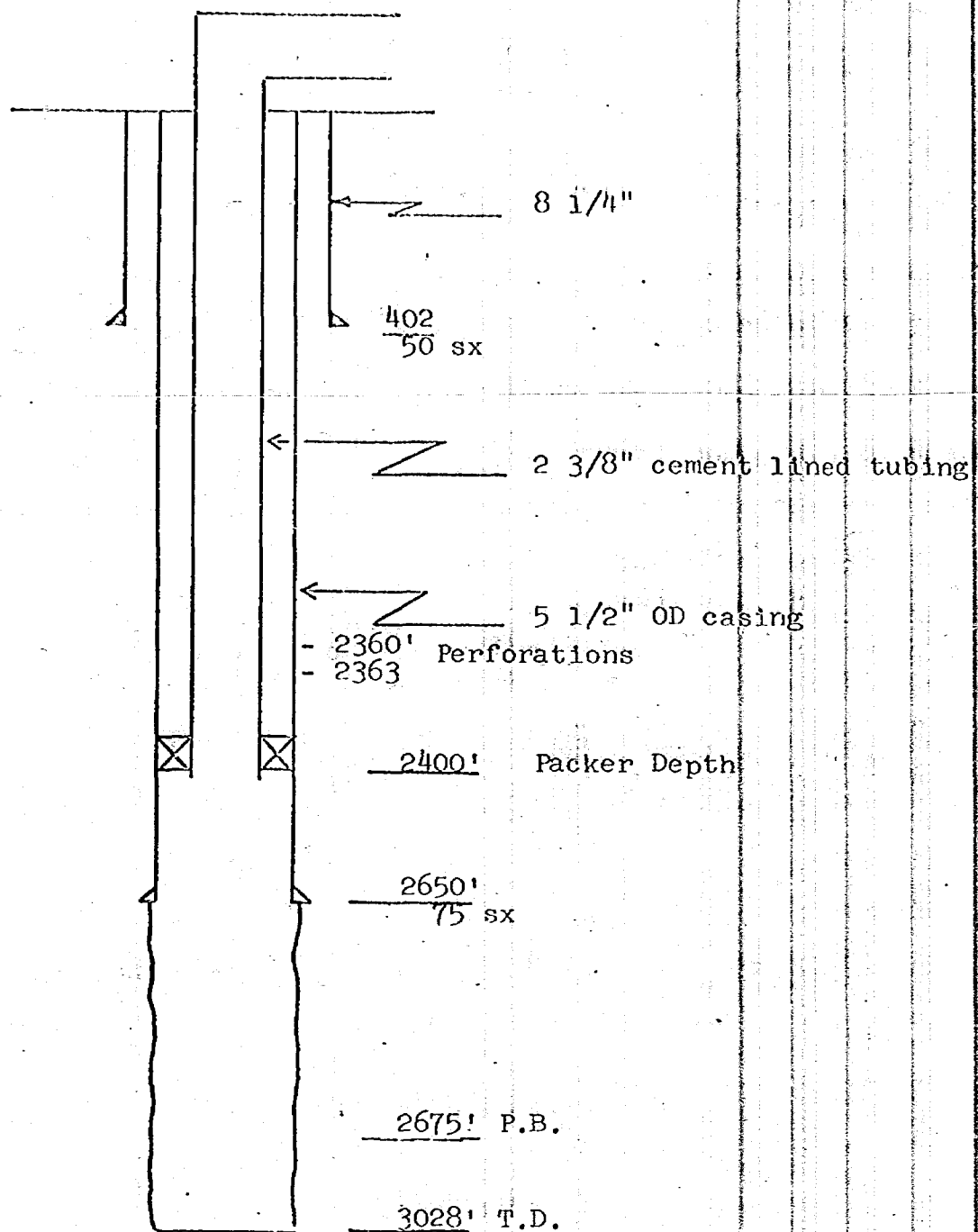


BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-1
CASE NO. 412.5

PROPOSED PROCEDURE

1. Tag bottom and tally out.
2. Cleanout to 2633' if necessary.
3. Run cement lined tubing w/retrievable packer set at 1900'.
4. Commence injection.

Continental Oil Company
Levers B No. 1
1980' FWL & 660' FEI Sec. 34-16-29
Elevation 3661'



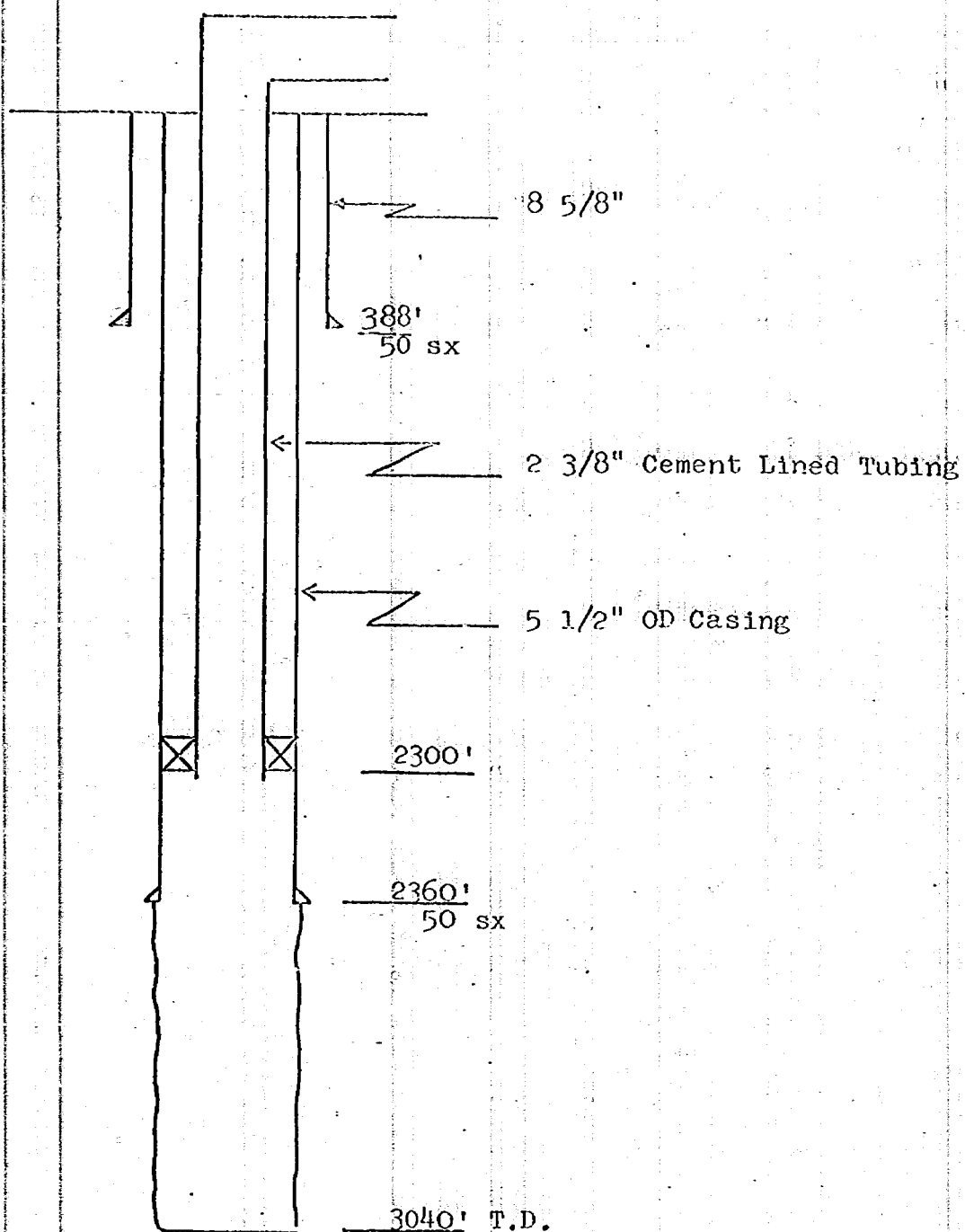
PROPOSED PROCEDURE

1. Tag bottom and tally tubing out.
2. Run GR/N log and perforate Premier and Lovington from log depths.
3. Run RBP and packer and break down perforations w/mud acid.
4. Cleanout to 2675' if fill is present.
5. Run C.L. tubing w/retrievable to be set at 2400'.
6. Commence injection.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-2
CASE NO. 413.5

EXHIBIT 2-2

Continental Oil Company
Levers B No. 3
660' FNL & 1980' FEL Sec. 34-16-29
Elevation 3663'



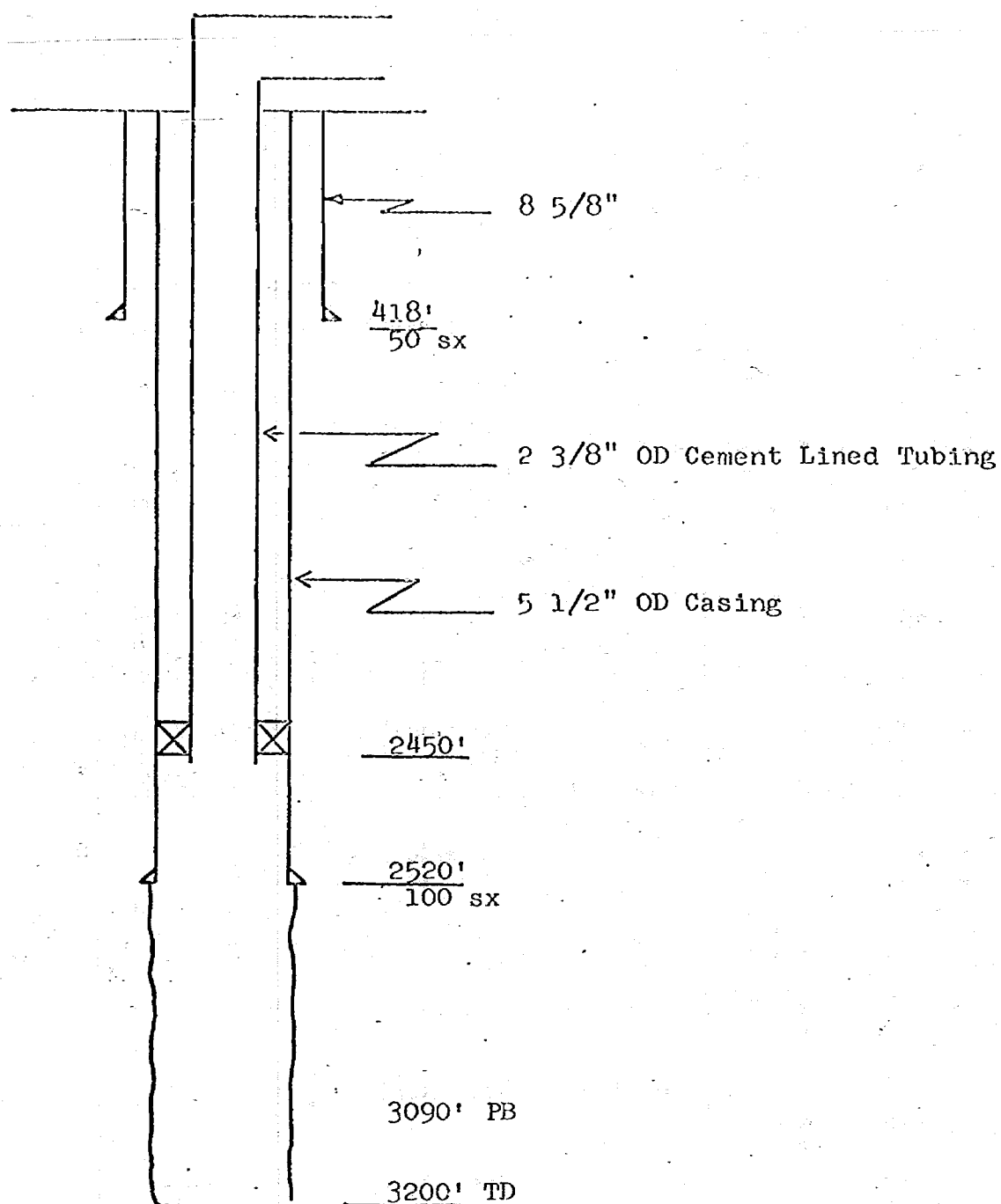
PROPOSED PROCEDURE

1. Run GR/N log w/caliper.
2. Plugback to 2675 $\pm$ depending on log.
3. Run cement lined tubing w/retrievable packer to be set at 2300'.
4. Commence injection.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-3
CASE NO. 4/25

EXHIBIT 2-3

Continental Oil Company
Levers B No. 4
660' FN & W LINES Sec. 35-16-29
Elevation 3666'



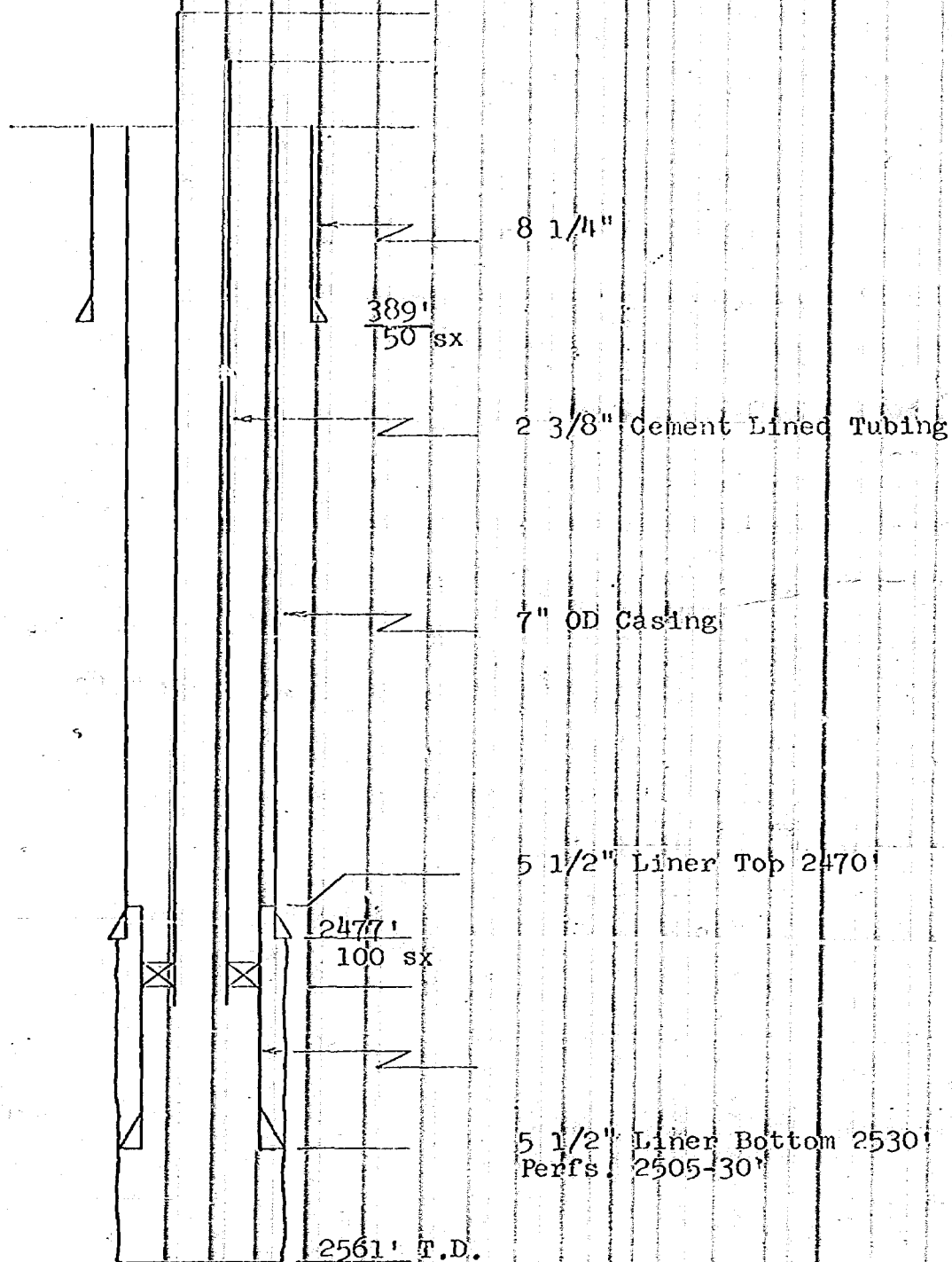
PROPOSED PROCEDURE

1. Run GR/N logs & caliper survey.
2. Perforate casing opposite Premier from log depths.
3. Plugback to approximately 2660' w/dump bailer.
4. Break down new perforations with mud acid.
5. Run cement lined tubing w/retrievable packer to be set at approximately 2450'.
6. Commence injection.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-4
CASE NO. 4445

EXHIBIT 2-4

Continental Oil Company
 Levers B No. 8
 660' PS & E lines Sec. 34-16-29
 Elevation 3645'

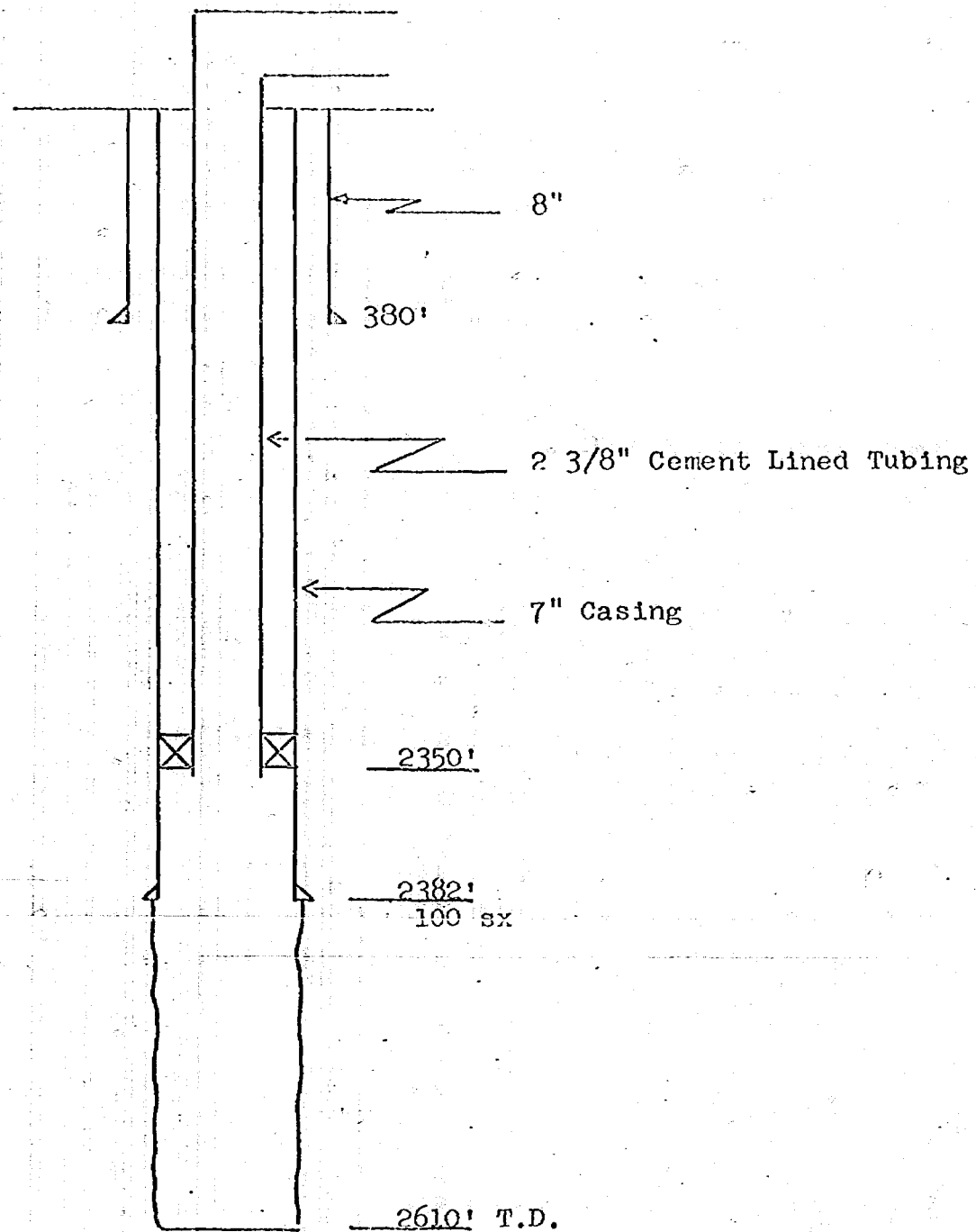


PROPOSED PROCEDURE

1. Tag bottom and tally tubing out.
2. Deepen approximately 75' (depending on offset logs).
3. Run GR/N log.
4. Run cement lined tubing w/retrievable packer to be set at 2490'.
5. Commence injection.

BEFORE EXAMINER NUMBER	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	2-5
CASE NO.	44-2-5

Continental Oil Company
Levers B No. 10
330' PSL and 2310' FWL Sec. 34-16-29
Elevation 3621'



PROPOSED PROCEDURE

1. Run SLM
2. Cleanout to 2610' if necessary.
3. Run cement lined tubing w/retrievable packer to be set at 2350'.
4. Commence injection.

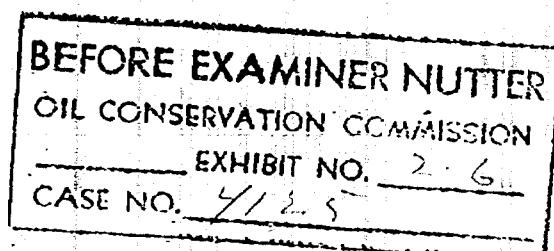
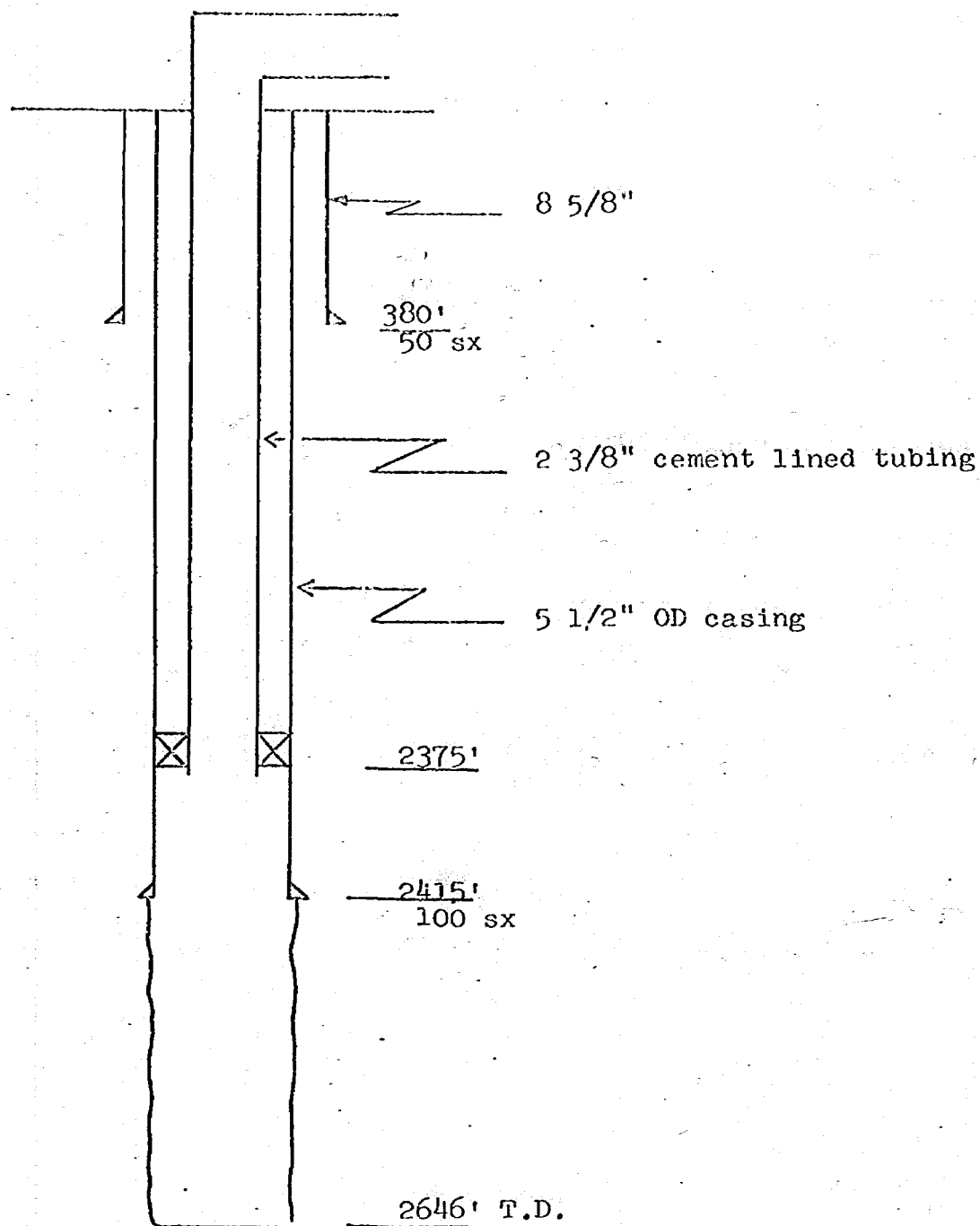


EXHIBIT 2-6

Continental Oil Company
Levers B No. 14
2310' FN & WL Sec. 34-16-29
Elevation 3651'



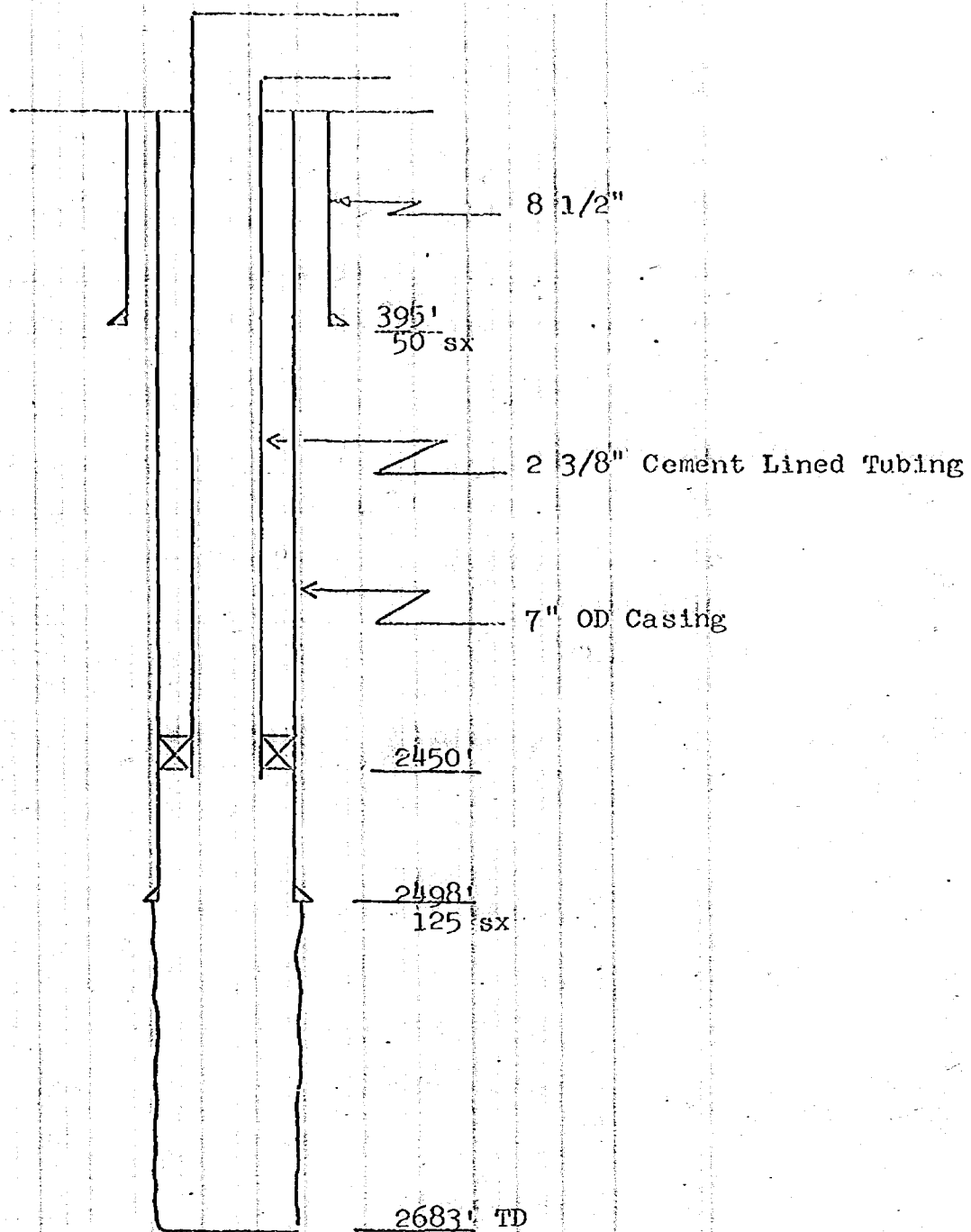
PROPOSED PROCEDURE

1. Drill out cement 1294' to TD.
2. Acidize open hole w/1000 gals. LTNE.
3. Run cement lined tubing w/retrievable packer set at 2375'.
4. Commence injection.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-7
CASE NO. 4/ 2.5

EXHIBIT 2-7

Continental Oil Company
Heard No. 1
2120' FSL & 520' FWL Sec. 35-16-29
Elevation 3655'



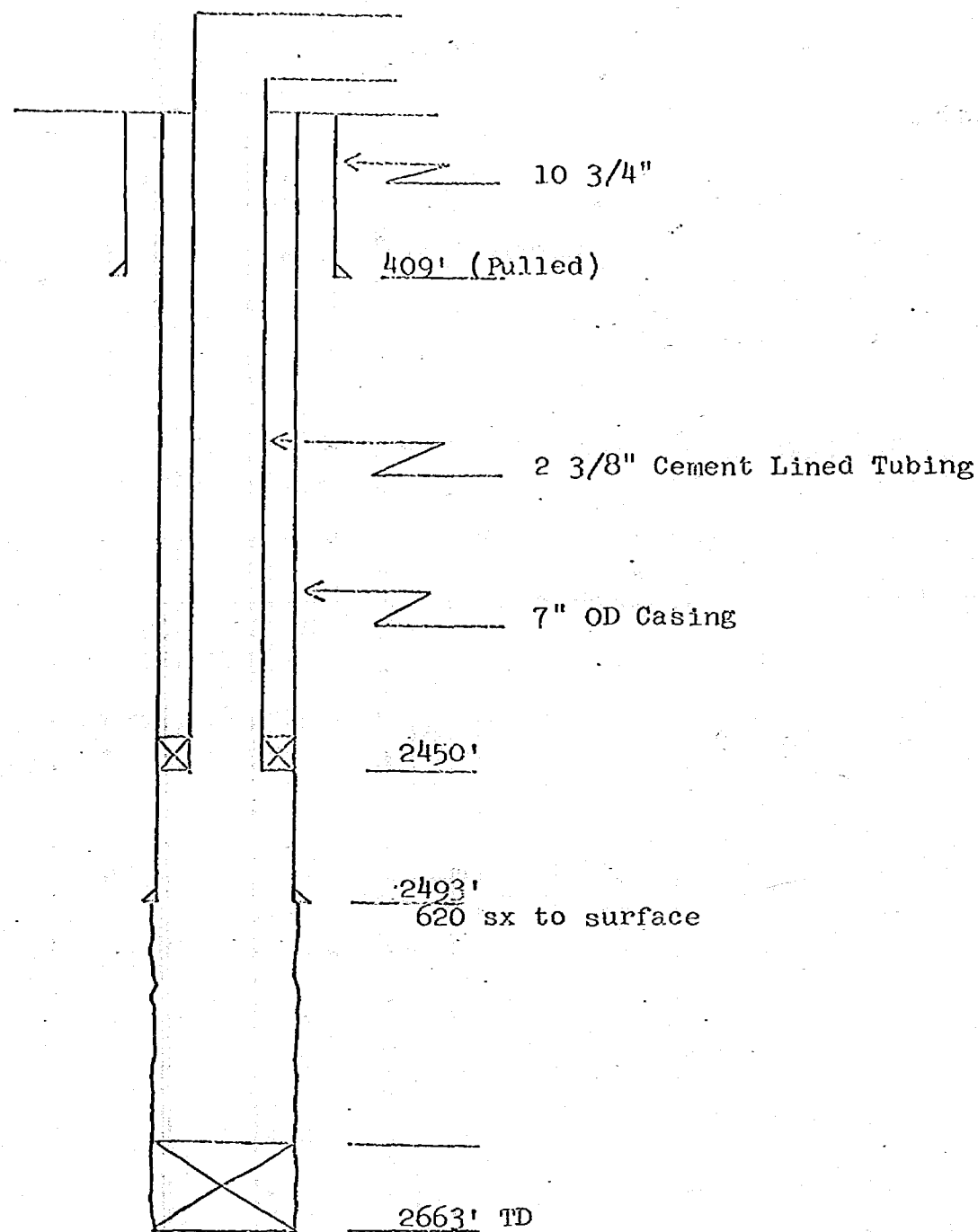
PROPOSED PROCEDURE

1. Tag bottom and tally out.
2. Run cement lined tubing w/retrievable packer set at 2450'.
3. Commence injection.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-8
CASE NO. 41-5

EXHIBIT 2-8

Continental Oil Company
Heard No. 4
990' FSL & 1651' FWL Sec. 35-16-29
Elevation 3655'



PROPOSED PROCEDURE

1. Tag bottom and tally out.
2. Cleanout to 2663' if necessary.
3. Run cement lined tubing w/retrievable packer set at 2450'.

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	2-9
CASE NO.	4725

EXHIBIT 2-9

Continental Oil Company
Donohue No. 4
(To be drilled)
1650' FWL & 1980' FNL Sec. 35-16-29

7 5/8" @
400'
185 sx

3 1/2" @
2700'
400 sx

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-10
CASE NO. 4125

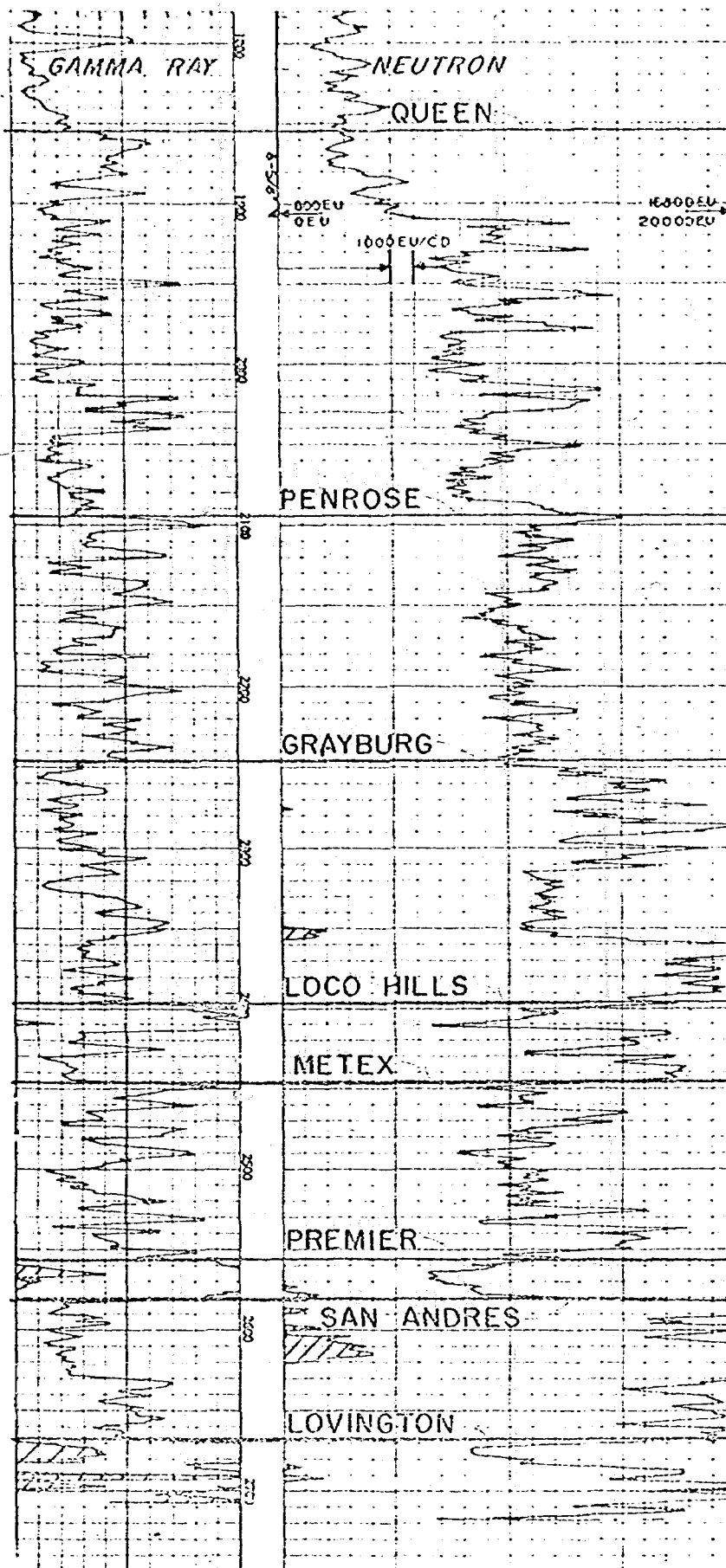
Injection to be through perforations

PROPOSED PROCEDURE

1. Set 7 5/8" surface casing at 400' w/185 sx.
2. Set 3 1/2" injection string at 2700' w/400 sx.
3. Run GR/N log and perforate pay intervals.
4. Treat perforations w/500 gals. acid.
5. Commence injection.

TYPICAL LOG SECTION

FOREST POOL AREA



DEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

EXHIBIT NO. 4

EXHIBIT 4

SUMMARY DATA SHEET

General

1. Area, Acres	800
2. Number of Producing Oil Wells	14
3. Number of Plugged or Shut-in Wells	5
4. Cumulative Oil Production at 3-1-69	505,533
5. Average Daily Oil Production per Producing Well, February, 1969	.46
6. Average Daily Water Production per Producing Well, February, 1969	.28
7. Average Gas-Oil Ratio, March 1967	Not reported

Geological Data

1. Producing Formation	Grayburg-San Andres
2. Average Depth, Feet	2,600
3. Type Structure	Stratigraphic trap

Reservoir Properties

1. Estimated original reservoir pressure, est., psi	1,125
2. Estimated Reservoir Pressure at Waterflood, psi	125

Reserve Estimates

1. Estimated Waterflood Recovery	630,800
Barrels ST Oil	

Performance Forecast

	Rules of Thumb	Actual Performance Cave Pool Unit Waterflood	Performance Forecast Forest Pool Waterflood
Fill-up (times primary)	2.00	1.832	2.00
Percent fill-up at First Response	60-80%	80%	70%
Percent Fill-up at Peak Rate	100%	112%	100%
Ratio of Water Injection Rate to Peak Oil Rate	2 to 12 4 to 6 Good 2 to 4 Exceptional	2.7	3.5
Time at Peak Rate	4 to 10 months	7 months	8 months
Secondary to Primary Ratio	.75 to 1.25	1.50	1.25

BEFORE EXAMINER NUTTER
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. 5
 CASE NO. 4/15

23

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
CONTINENTAL OIL COMPANY FOR AUTHORITY
TO INSTALL AND OPERATE A WATERFLOOD
PROJECT ON ITS DONOHUE, HEARD AND
LEVERS "B" LEASES IN THE FOREST-SAN
ANDRES POOL LOCATED IN SECTIONS 34 AND
35, TOWNSHIP 16 SOUTH, RANGE 29 EAST,
EDDY COUNTY, NEW MEXICO

Chad 4/25

A P P L I C A T I O N

Comes now Applicant, Continental Oil Company, and respectfully
requests authority to install and operate a waterflood on its Donohue, Heard,
and Levers "B" leases in the Forest-San Andres Pool, located in Sections 34
and 35, T16S, R29E, Eddy County, New Mexico, and in support thereof Applicant
would show:

1. That the attached plat, marked Exhibit 1, shows the leases and
wells in the Forest-San Andres Pool and surrounding area.
2. That production from the Forest-San Andres Pool is at an ad-
vanced stage of depletion and that recovery by primary methods
is at or near the economic limit.
3. That engineering investigations indicate that waterflooding the
Forest-San Andres Pool will be physically and economically feasible.
4. That applicant proposes to inject water into the following wells:

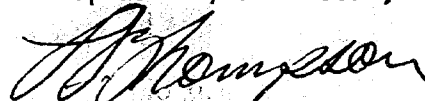
<u>Well</u>	<u>Location</u>
✓ Donohue No. 3	Unit J-34-16S-29E ✓
✓ Donohue No. 4 (to be drilled)	Unit F-35-16S-29E
✓ Heard No. 1	Unit L-35-16S-29E
✓ Heard No. 4	Unit N-35-16S-29E
✓ Levers "B" No. 1	Unit H-34-16S-29E
✓ Levers "B" No. 3	Unit B-34-16S-29E
✓ Levers "B" No. 4	Unit D-35-16S-29E
✓ Levers "B" No. 8	Unit P-34-16S-29E
✓ Levers "B" No. 10	Unit N-34-16S-29E
✓ Levers "B" No. 14	Unit F-34-16S-29E

5. That the proposed injection wells will be equipped as shown on the
tabulation of injection well data attached hereto and marked
Exhibit 2, and on the schematic diagrams attached hereto and marked
Exhibits 2-1 through 2-10.

6. That applicant proposes to inject a total of approximately 2,000 barrels of fresh water per day into the 10 proposed injection wells on an 80-acre five-spot pattern. Said water will be purchased from an outside supplier.
7. That the said waterflood will be installed and operated in conformance with Rules 701E.
8. That the proposed secondary recovery will result in the recovery of hydrocarbons which would not be recovered by primary methods and is therefore in the interest of conservation and prevention of waste.

WHEREFORE, Applicant respectfully requests that this matter be set for hearing before the Commission's duly appointed Examiner and that upon hearing, an order be entered granting authority to install and operate a waterflood within the Forest-San Andres Pool as described hereinabove.

Respectfully submitted,



L. P. THOMPSON
Division Manager
Hobbs Division

VTL-JS

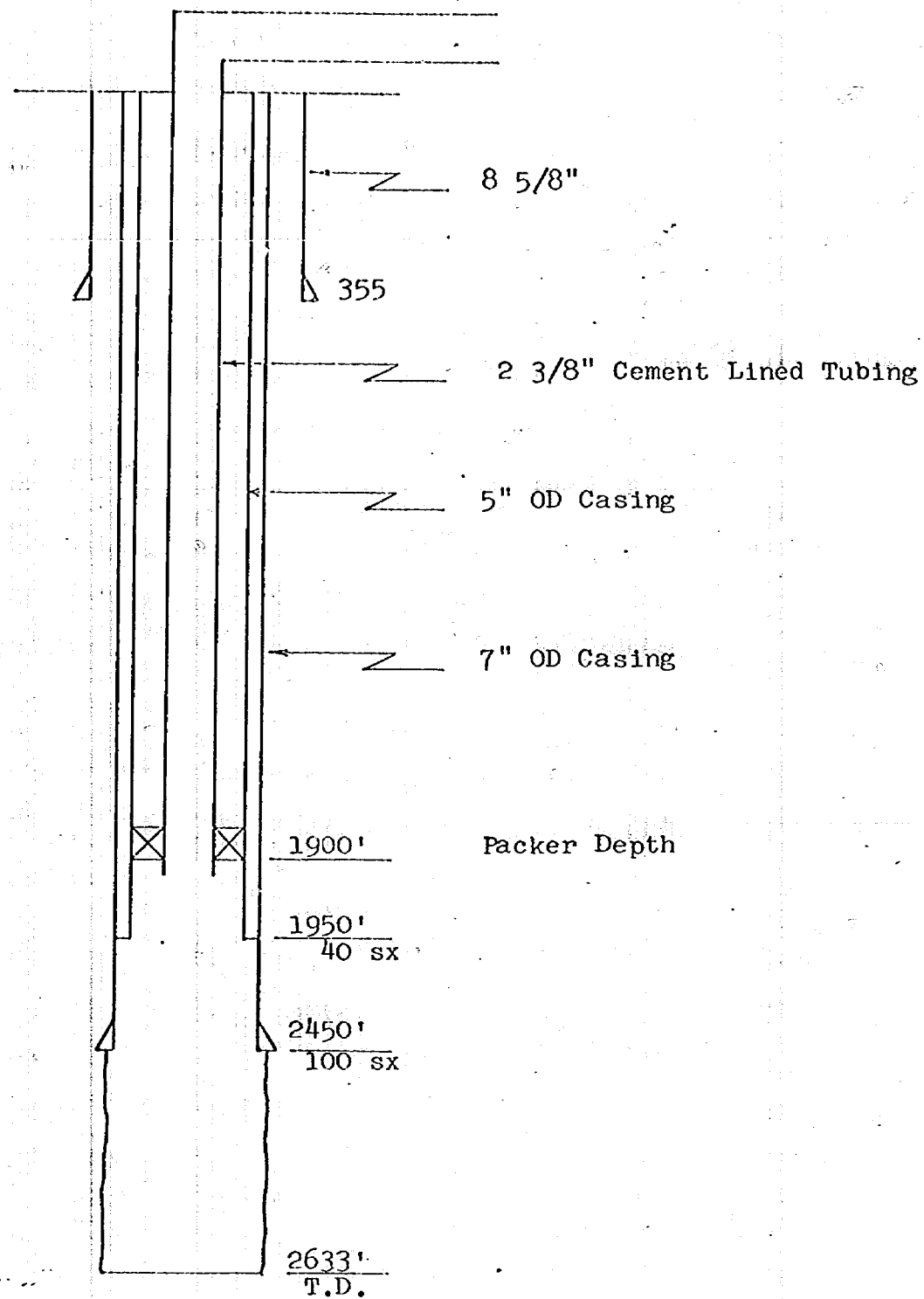
Case 1/125

FOREST POOL INJECTION WELL DATA

EXHIBIT NO. 2

Company, Lease and Well No.		Total Depth and/or PBD		SURFACE CASING		PRODUCTION CASING		PRODUCING INTERVAL	
CONTINENTAL OIL COMPANY				Size	Depth	Cement	Size	Depth	Cement
									Perforations/Oh
E. C. Donohue No. 3		1650' FSL & FEL Sec. 34-16-29		8 5/8"	355'	Mudded In	7"	2450'	100
									Oh 2450'-2633'
Levers B No. 1		1980' FNL & 660' FEL Sec. 34-16-29		8 1/4"	402'	50	5 1/2"	2650'	75
									Perf. 2360-63' & Oh 2650'-2675'
Levers B No. 3		660' FNL & 1980' FEL Sec. 34-16-29		8 5/8"	388'	50	5 1/2"	2360'	50
									Oh 2360'-3040'
Levers B No. 4		660' FNL & FNL Sec. 35-16-29		8 5/8"	418'	50	5 1/2"	2520'	100
									Oh 2520'-3090'
Levers B No. 8		660' FSL & FEL Sec. 34-16-29		8 1/4"	389'	50	7"	2477'	100
									Perf. 5 1/2" liner 2505-30' & Oh 2530'-2561'
Levers No. 10		330' FSL & 2310' FNL Sec. 34-16-29		8"	380'	Mudded In	7"	2382'	100
									Oh 2382'-2610'
Levers No. 12		2310' FNL & FNL Sec. 34-16-29		8 5/8"	380'	50	5 1/2"	2415'	100
									Oh 2415'-2646'
Heard No. 1		2120' FSL & 520' FNL Sec. 35-16-29		8 1/2"	395'	50	7"	2498'	125
									Oh 2498'-2683'
Heard No. 4		990' FSL & 1651' FNL Sec. 35-16-29		10 3/4"	409'	Casing Puled	7"	2493'	620
									Oh 2493'-2663'
Donohue No. 4 (To be drilled)		1650' FNL & 1980' FNL Sec. 35-16-29		7 5/8"	400'	185	3 1/2"	2700'	400
									To be perforated from logs

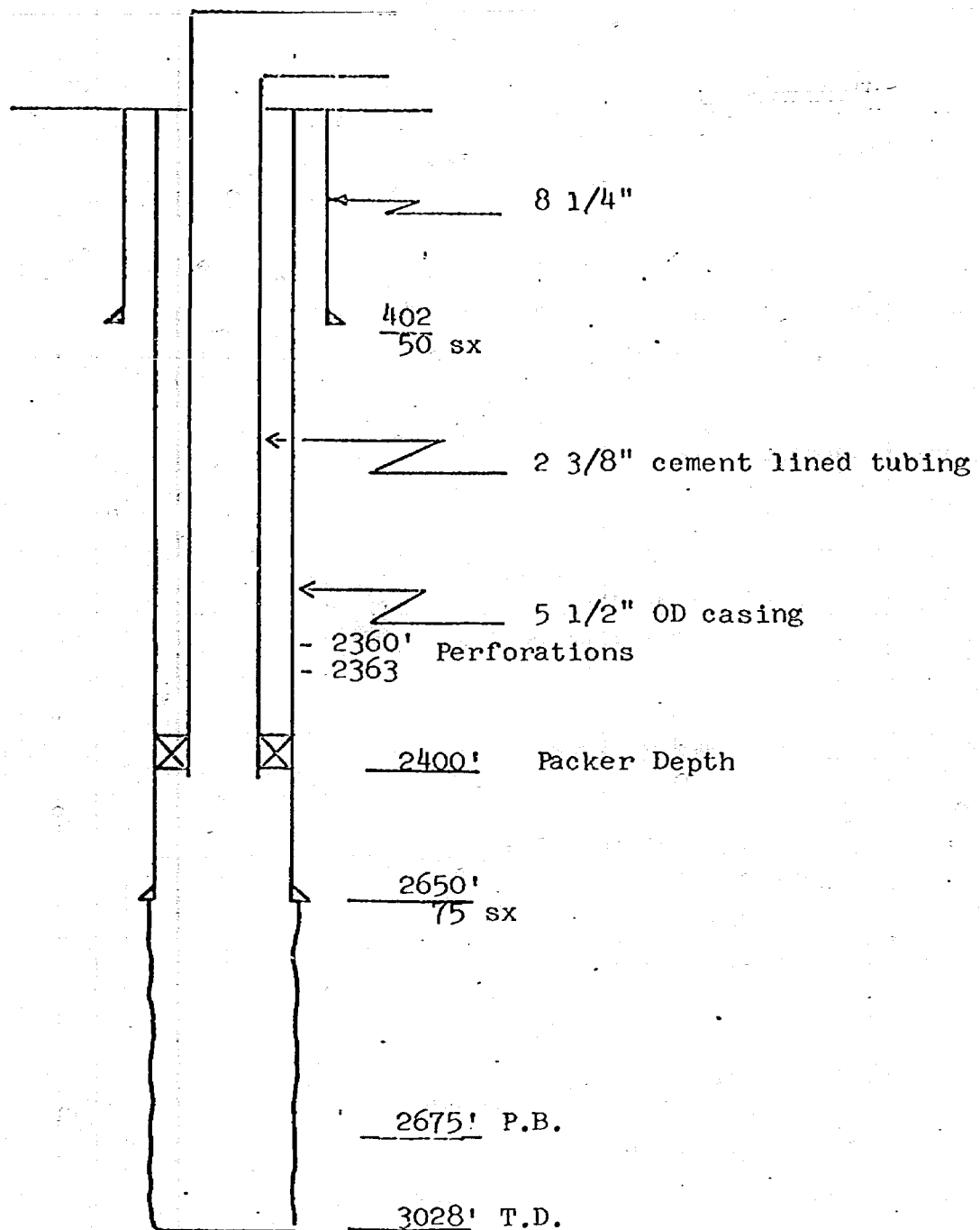
Continental Oil Company
Donohue No. 3
1650' FM. & ST. Sec. 34-16-29



PROPOSED PROCEDURE

1. Tag bottom and tally out.
2. Cleanout to 2633' if necessary.
3. Run cement lined tubing w/retrievable packer set at 1900'.
4. Commence injection.

Continental Oil Company
Levers B No. 1
1980' FNL & 660' FE1 Sec. 34-16-29
Elevation 3661'



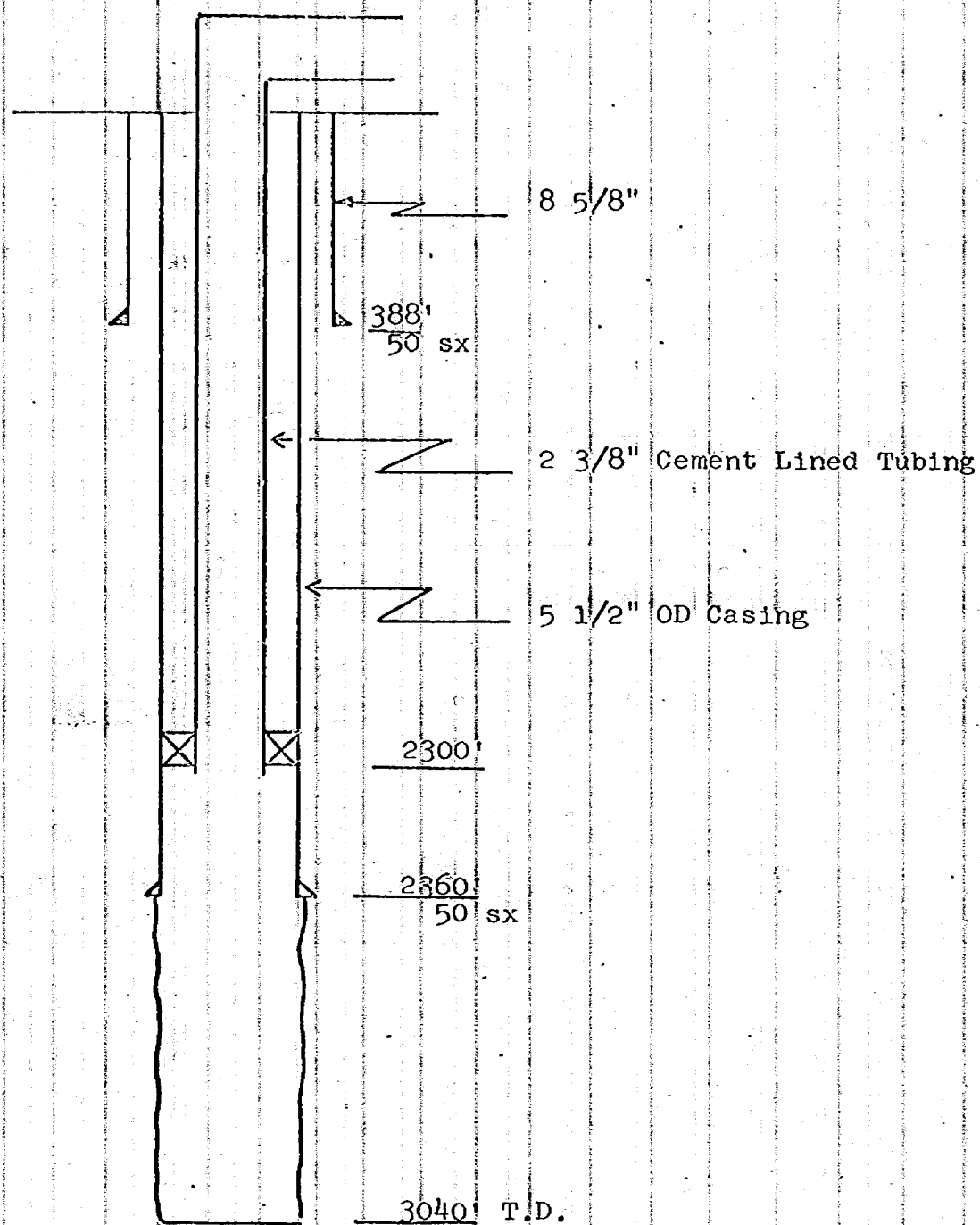
PROPOSED PROCEDURE

1. Tag bottom and tally tubing out.
2. Run GR/N log and perforate Premier and Lovington from log depths.
3. Run RBP and packer and break down perforations w/mud acid.
4. Cleanout to 2675' if fill is present.
5. Run C.L. tubing w/retrievable to be set at 2400'.
6. Commence injection.

EXHIBIT 2-2

Case 4125-

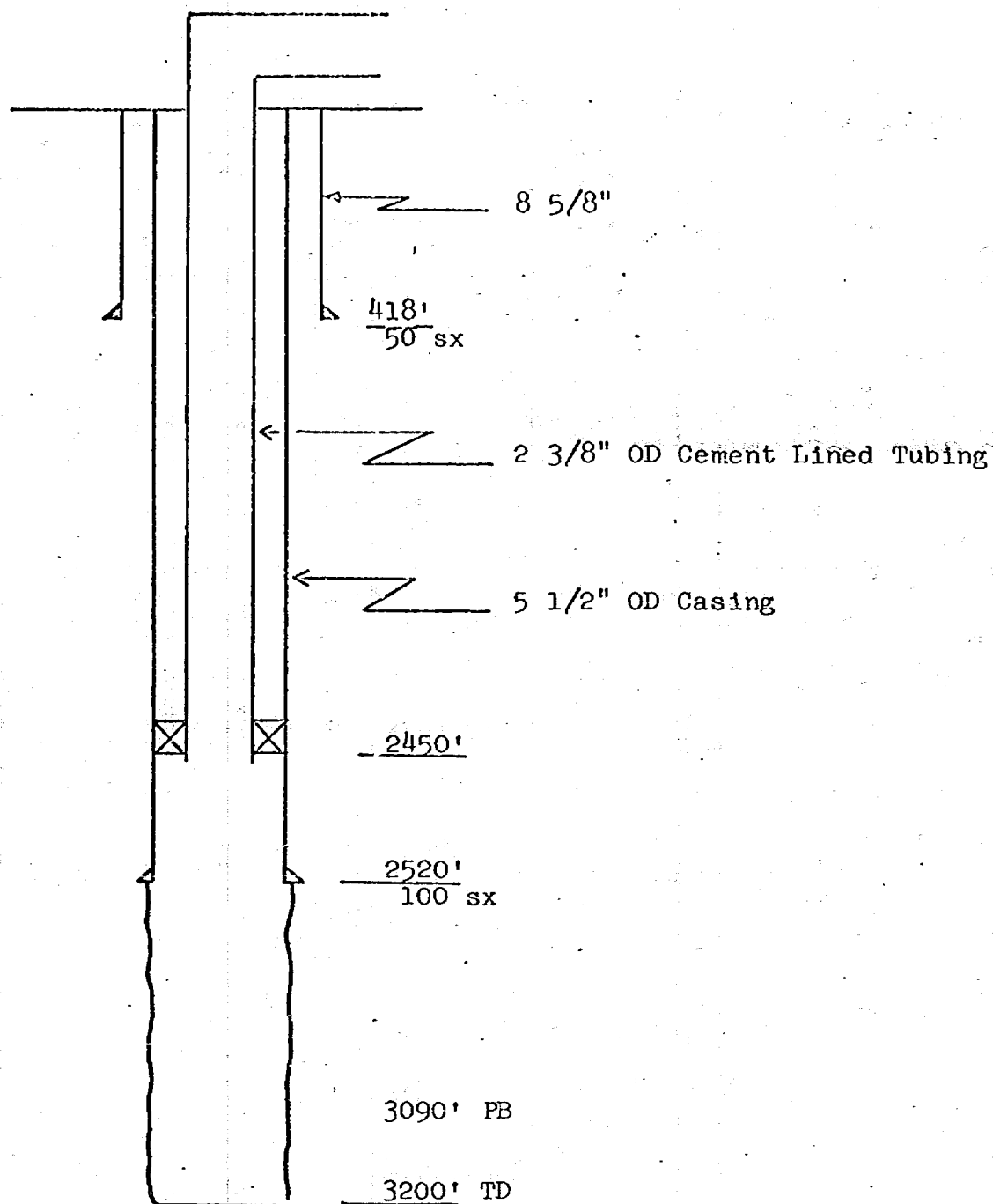
Continental Oil Company
 Levers B No. 3
 660' PNL & 1980' PFL Sec. 34-16-29
 Elevation 3663'



PROPOSED PROCEDURE

1. Run GR/N log w/caliper.
2. Plugback to 2675 ± depending on log.
3. Run cement lined tubing w/retrievable packer to be set at 2300'.
4. Commence injection.

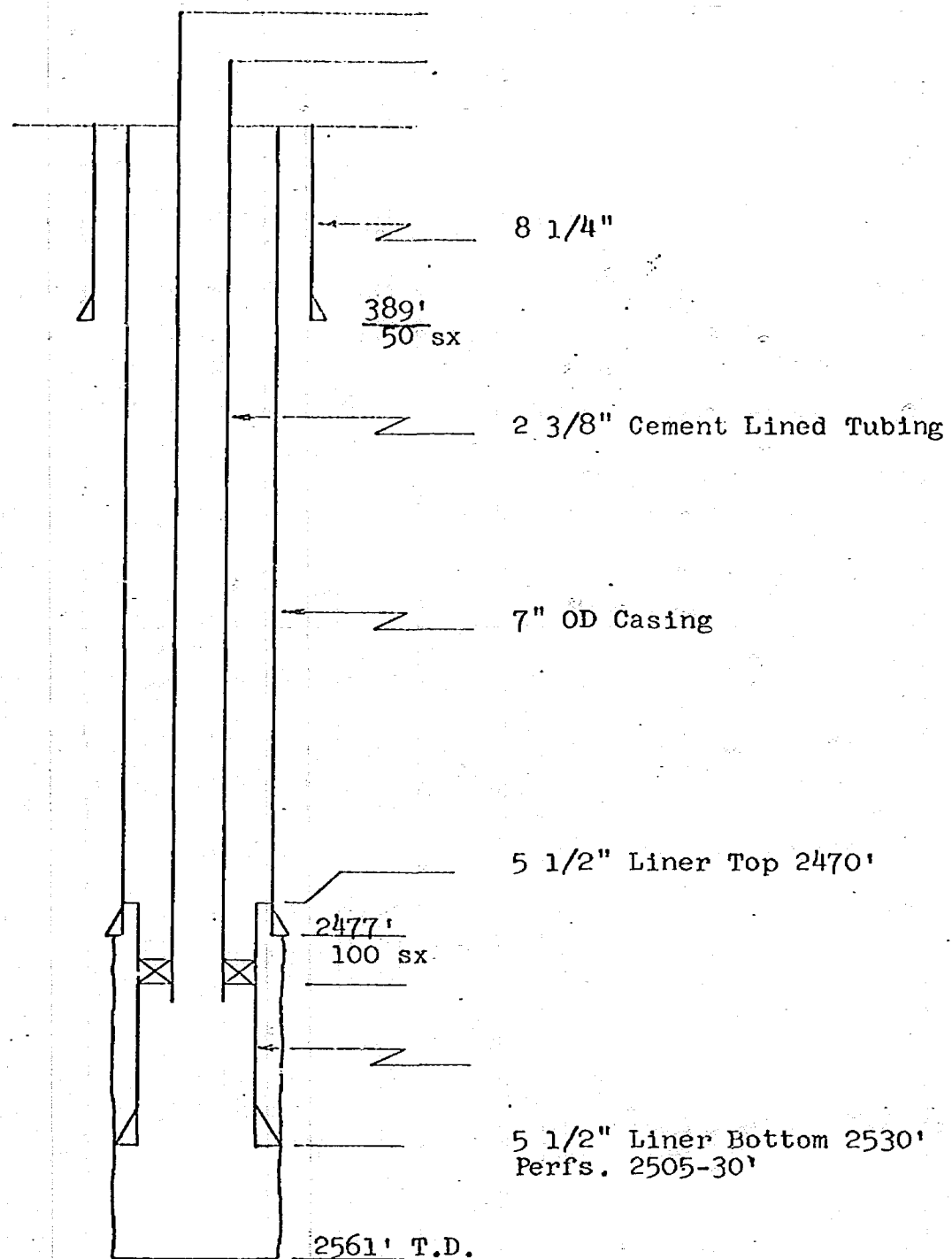
Continental Oil Company
Levers B No. 4
660' FN & W LINES Sec. 35-16-29
Elevation 3666'



PROPOSED PROCEDURE

1. Run GR/N logs & caliper survey.
2. Perforate casing opposite Premier from log depths.
3. Plugback to approximately 2660' w/dump bailer.
4. Break down new perforations with mud acid.
5. Run cement lined tubing w/retrievable packer to be set at approximately 2450'.
6. Commence injection.

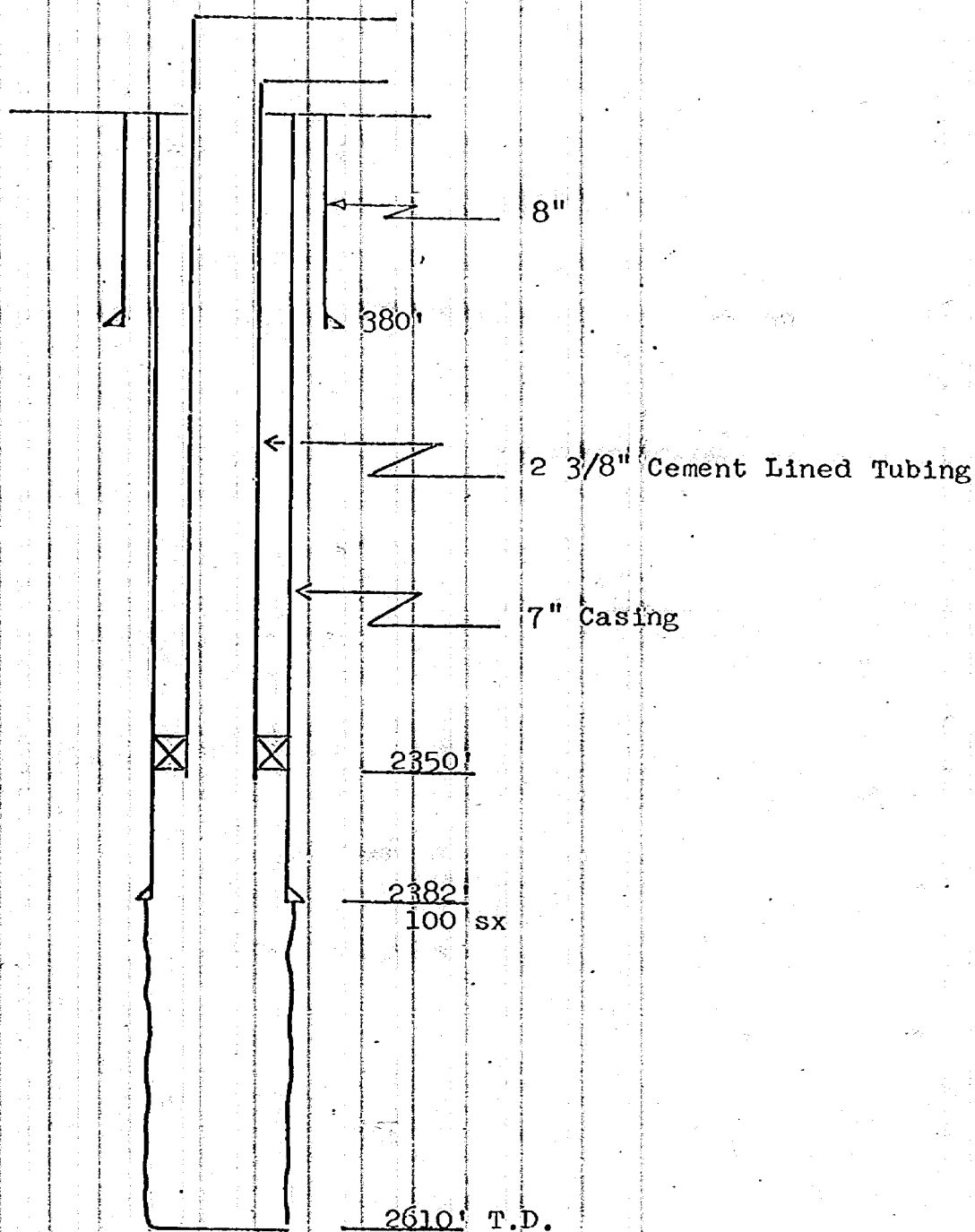
Continental Oil Company
Levers B No. 8
660' FS & E lines Sec. 34-16-29
Elevation 3645'



PROPOSED PROCEDURE

1. Tag bottom and tally tubing out.
2. Deepen approximately 75' (depending on offset logs).
3. Run GR/N log.
4. Run cement lined tubing w/retrievable packer to be set at 2490'.
5. Commence injection.

Continental Oil Company
Levee's B No. 10
330' FSL and 2310' FWL Sec. 34-16-29
Elevation 3621'



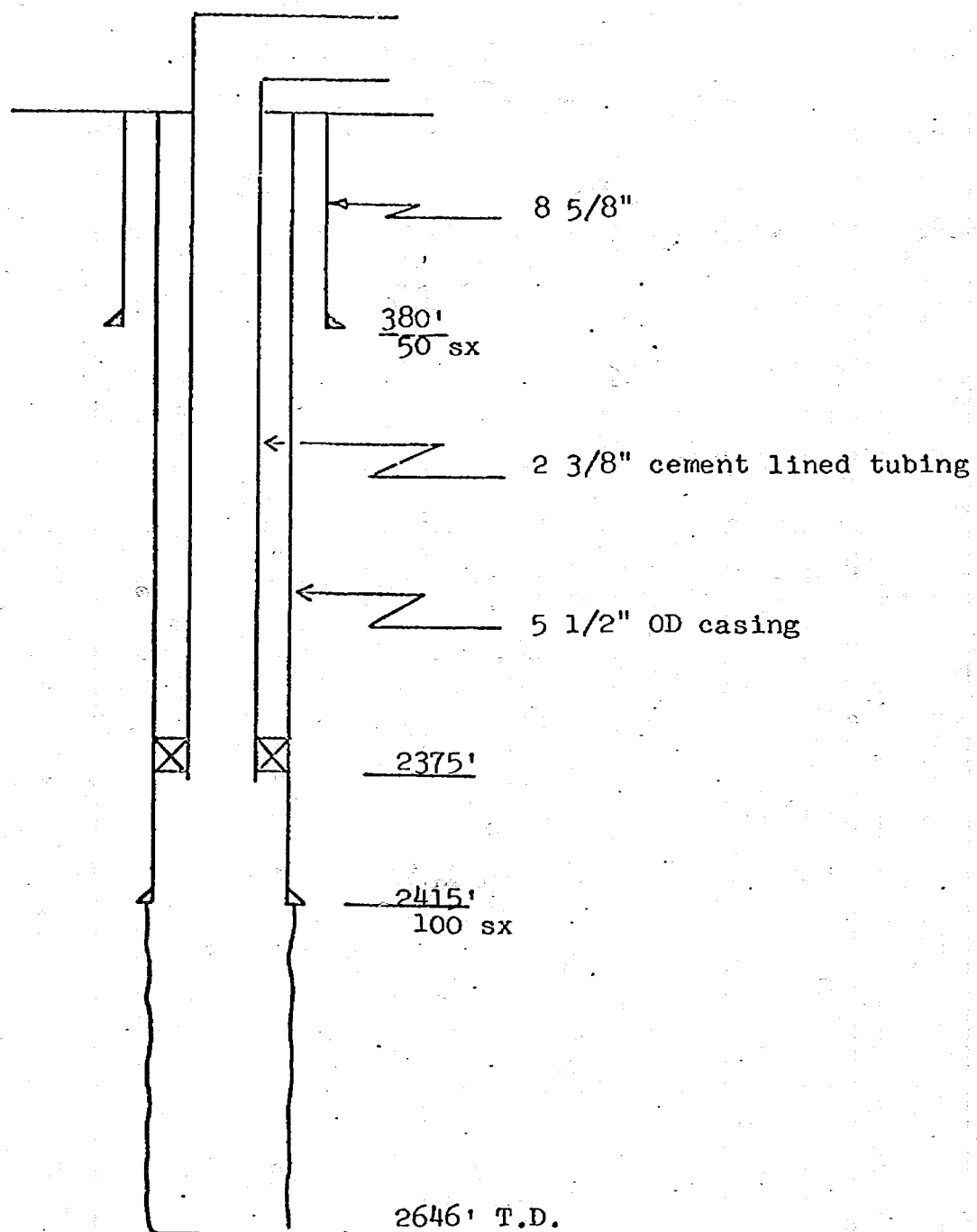
PROPOSED PROCEDURE

1. Run SLM
2. Cleanout to 2610' if necessary.
3. Run cement lined tubing w/retrievable packer to be set at 2350'.
4. Commence injection.

EXHIBIT 2-6

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Continental Oil Company
Levers B No. 14
2310' FN & WL Sec. 34-16-29
Elevation 3651'



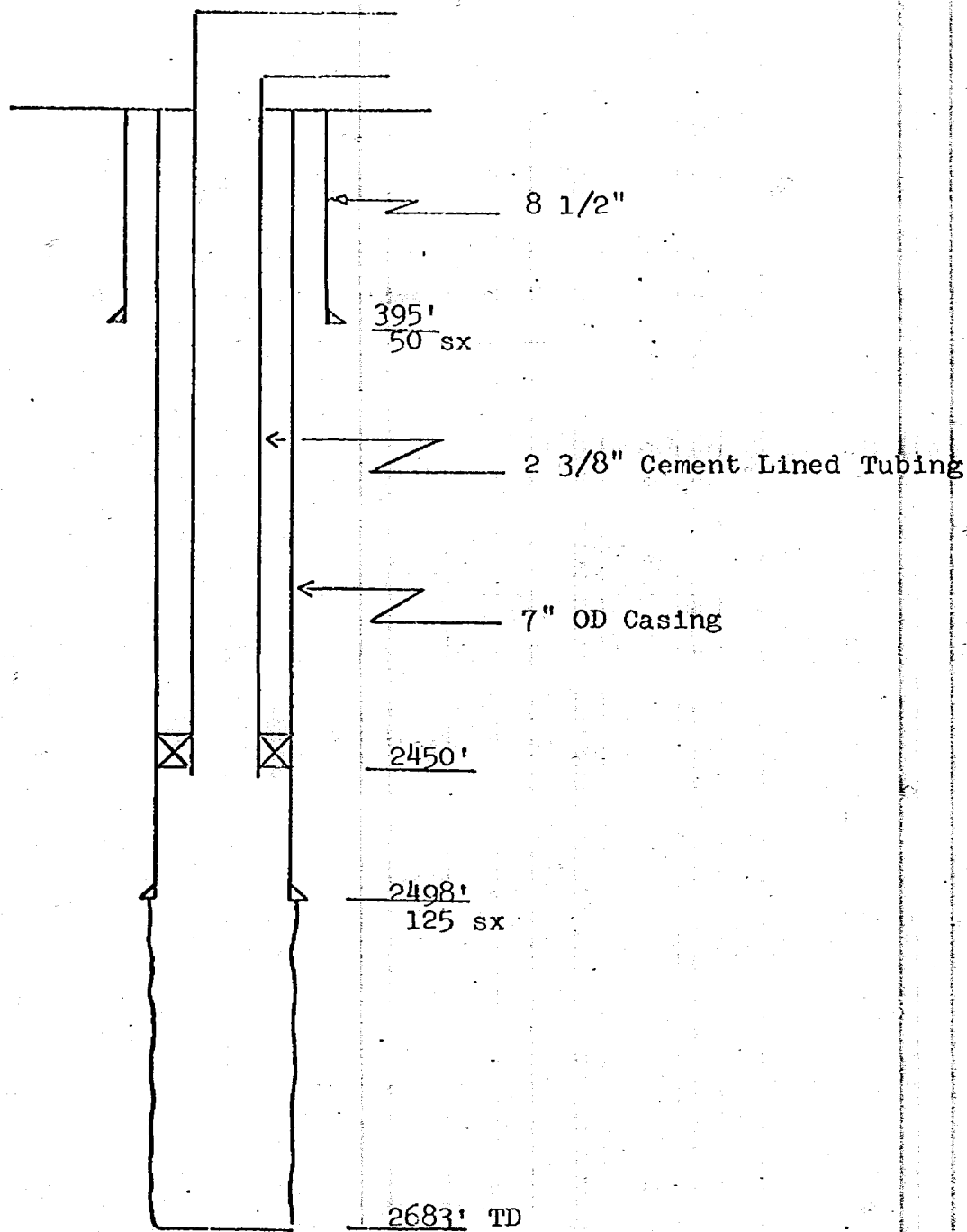
PROPOSED PROCEDURE

1. Drill out cement 1294' to TD.
2. Acidize open hole w/1000 gals. LTNE.
3. Run cement lined tubing w/retrievable packer set at 2375'.
4. Commence injection.

EXHIBIT 2-7

Case 4125

Continental Oil Company
Heard No. 1
2120' FSL & 520' FWL Sec. 35-16-29
Elevation 3655'



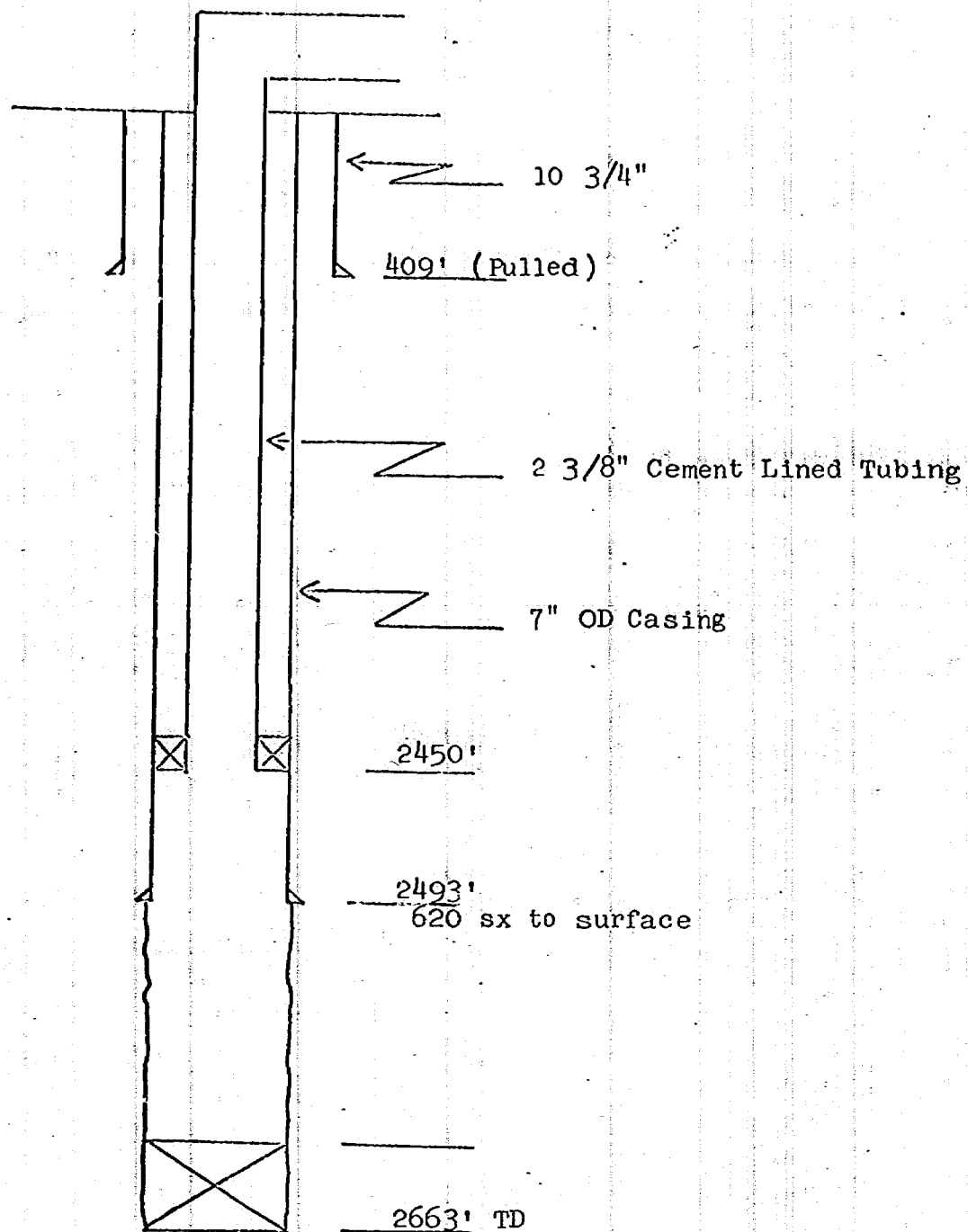
PROPOSED PROCEDURE

1. Tag bottom and tally out.
2. Run cement lined tubing w/retrievable packer set at 2450'.
3. Commence injection.

EXHIBIT 2-8

Chad 4/25

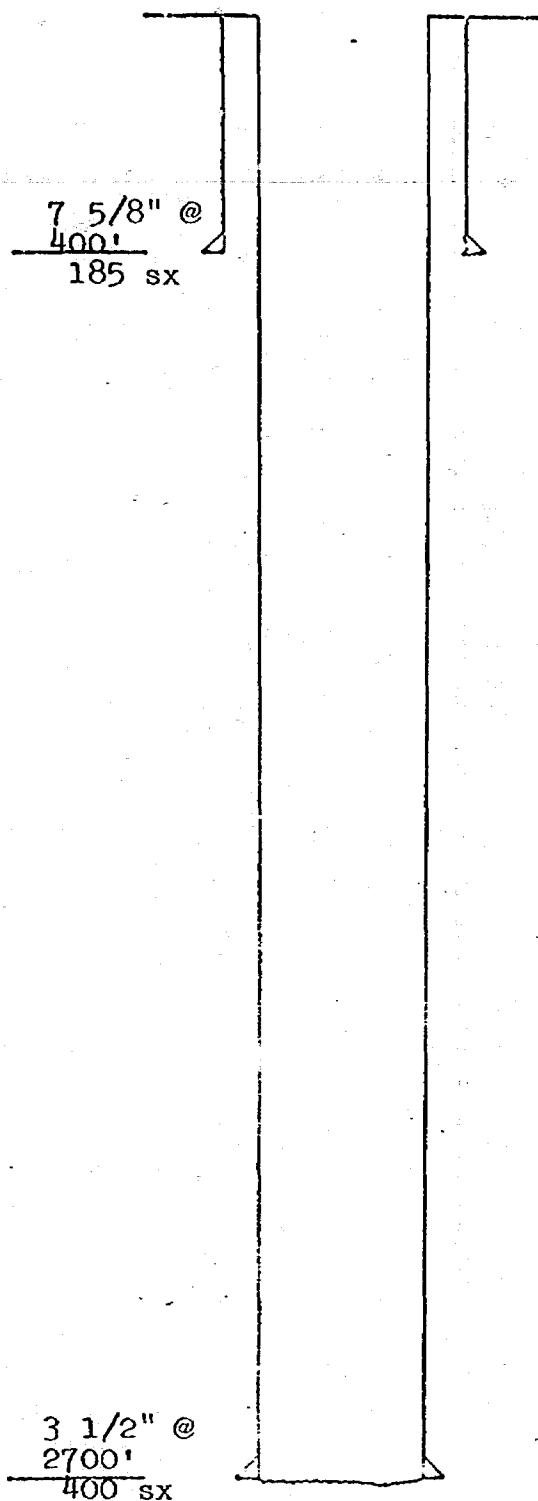
Continental Oil Company
Heard No. 4
990' FSL & 1651' FWL Sec. 35-16-29
Elevation 3655'



PROPOSED PROCEDURE

1. Tag bottom and tally out.
2. Cleanout to 2663' if necessary.
3. Run cement lined tubing w/retrievable packer set at 2450'.

Continental Oil Company
Donohue No. 4
(To be drilled)
1650' FWL & 1980' FNL Sec. 35-16-29



Injection to be through perforations

PROPOSED PROCEDURE

1. Set 7 5/8" surface casing at 400' w/185 sx.
2. Set 3 1/2" injection string at 2700' w/400 sx.
3. Run GR/N log and perforate pay intervals.
4. Treat perforations w/500 gals. acid.
5. Commence injection.

DRAFT

GMH/esr

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. 4125

Order No. R- 3756

APPLICATION OF CONTINENTAL OIL COMPANY
FOR A WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 7, 1969,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this day of May, 1969, 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, Continental Oil Company,
seeks permission to institute four three waterflood projects in the
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Grayburg and Forest San Andres Pool by
the injection of water into the San Andres formations
through ten injection wells in Section 34 and 35,
Township 16 NORTH South, Range 29 WEST East, NMPM,
Eddy 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.

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

(6) That the subject application should be approved and the ~~expanded~~ 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, Continental Oil Company, is hereby authorized to institute ~~the~~ ^{the three following} waterflood project, in the ~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~ ^{the three following} ~~Forest~~ ^{Grayburg and} Pool by the injection of water into the San Andres formations ^{ten} through the following-described wells in Township 16 ~~North~~ South, Range 29 ~~West~~ East, NMPM, Eddy County, New Mexico:

Continental Forest Levers waterflood Project

Injection wells:

Lease "B" Well No. 3 - Unit B - Section 34
Lease "B" Well No. 14 - Unit F - Section 34
Lease "B" Well No. 1 - Unit H - Section 34
Lease "B" Well No. 10 - Unit H - Section 34
Lease "B" Well No. 8 - Unit P - Section 34
Lease "B" Well No. 4 - Unit D - Section 35

Continental Forest Donohue waterflood Project

Injection wells:

Donohue Well No. 3 - Unit J - Section 34
Donohue Well No. 4 - to be drilled in Unit F - Section 35

Continental Forest Heard

Injection wells:

Heard Well No. 1 - Unit L - Section 35
Heard Well No. 4 - Unit N - Section 35

(2) That the subject waterflood project, ~~is hereby designated~~ the 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 ~~Levington-Paddock Unit~~ ^{subject} 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; ~~further that the~~ ^{may con-} ~~Secretary-Director~~ ^{solidate the} ~~Secretary-Director~~ ^{these projects} ~~Secretary-Director~~ ^{into a single} ~~Secretary-Director ^{project upon} ~~Secretary-Director~~ ^{unification}~~

(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.

of the area involved.