SECONDARY RECOVERY STUDY

SKELLY PENROSE "B" UNIT

LEA COUNTY, NEW MEXICO

PREPARED BY:

SKELLY OIL COMPANY

UNIT OPERATOR

JULY 12, 1965

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INTRODUCTION

The Langlie Mattix Pool, located in Lea County, New Mexico is areally the largest and among the earliest developed oil pools in southeast New Mexico. This report concerns that portion of the Langlie Mattix Pool outlined on Attachment I as the Skelly Penrose "B" Unit and described as follows:

Township 22 South, Range 37 East
E/2 SE/4 Section 31
NW/4, W/2 NE/4, S/2 Section 32

Township 23 South, Range 37 East
W/2 NW/4 Section 4
All Section 5
NE/4, E/2 SE/4 Section 6
N/2 NE/4 Section 7
N/2, SE/4, N/2, SE/4 SW/4 Section 8
W/2 Section 9

New Mexico Oil Conservation Commission nomenclature designates as the vertical limits of the Langlie Mattix Pool those formations encountered between the lower 100 feet of the Seven Rivers formation and the base of the Queen formation.

The Working Interest Owners of the proposed Skelly Penrose "B" Unit have agreed that in order to conserve natural resources, to prevent waste, to protect correlative rights, and to institute and consummate secondary recovery operations the Langlie Mattix Pool underlying the proposed Unit Area should be unitized. Skelly Oil Company was selected to be the Unit Operator.

This report has been prepared in order to present data concerning the unit and secondary recovery operations at the New Mexico Oil Conservation Commission hearing which has been called by Skelly to request authority to institute the waterflood project.

CONCLUSIONS AND RECOMMENDATIONS

1. Primary producing life of the entire proposed unit area is 90 per cent complete on May 1, 1965. Those leases which have not reached their economic limit have reached 76 to 99 per cent of primary depletion.
2. An economically successful secondary recovery project for the subject unit can be expected.
3. Unitization of the unit area is necessary in order to prevent waste and protect correlative rights.
4. An adequate water supply is available for operating the unit.
5. Installation of secondary recovery facilities should be effected with all possible expediency.

DEVELOPMENT AND PRODUCTION HISTORY

Development of the Penrose Sand within the area of the Skelly Penrose "B" Unit was started with the drilling of Skelly Oil Company's Harrison "A" Well No. 1, completed December 4, 1935. Development east of the proposed unit area was rapid with most of the wells outlined on Attachment III as part of the proposed Skelly Penrose "A" Unit having been completed by 1940. Few wells in the "B" Unit were completed during the 1935-1940 period; most of the development in this area was during 1957 and 1958, with some wells completed as late as early 1960.

Primary life of the Penrose "B" Unit area is approximately 90 per cent complete. Estimated ultimate primary oil recovery is 1,717,780 barrels. On May 1, 1965, cumulative primary production was 1,550,398 barrels, with 167,382 barrels remaining primary oil to be produced. The remaining primary reserves were determined by extrapolation of rate time production curves. The present allowable for producing wells in the Skelly Penrose "B" Unit ranges from 1 to 8 barrels per day with six wells shut-in or temporarily abandoned, two wells plugged and abandoned and one well classified as an associated gas well.

Extensive Penrose Sand development is present adjacent to the proposed Unit area to the north, south and east. Skelly Oil Company is negotiating units in the south and east areas also, and will be unit operator for those areas when unitization is effected. The formation of three separate units was planned because development, in general, was considerably earlier in the "A" area than in the south and west areas, and the three areas are in different stages of depletion, the east (A area) being more advanced. The formation of separate units will better facilitate the negotiation of an equitable basis of participation in each of

the three areas. Certain notable differences in completion practices, as well as rate of development, are evident among the three areas; consequently, different operational problems may be encountered in the different areas.

Adjacent to Skelly Penrose "B" Unit on the north will be two secondary recovery projects; the Langlie Mattix Penrose Unit operated by Ambassador Oil Corporation, and Humble Oil and Refining's State "M" Lease on which a waterflood project has recently been initiated. Cooperative line flooding between the Skelly Penrose "B" Unit, the Ambassador Langlie Mattix Unit and the Skelly Penrose "A" Unit waterfloods will facilitate secondary operations and avoid undue drainage of unitized substances around the boundaries of the units.

Skelly Oil Company, incooperation with Humble and Ambassador, has operated a pilot waterflood on its H. O. Sims Lease in Section 34-T22S-R37E since August 1953. A map indicating the location of this pilot is shown on Attachment No. II. The Skelly portion of two 80-acre five-spots includes two injection wells and one producer within an enclosed five-spot pattern. Based on the production from H. O. Sims No. 6, the center producer of the five-spot, ultimate secondary recovery from Skelly's portion of the pilot area is estimated to be equal to ultimate primary recovery. Operation of the pilot indicates that injection difficulties can be expected due to gas stringers exposed in many of the older open hole completions. Pilot performance, however, definitely indicates that waterflooding of the Penrose Sand in the vicinity of the proposed Skelly Penrose "B" Unit can be accomplished profitably, and will promote conservation of natural resources.

A graph of the projected secondary response is shown on Attachment No. IV.

GEOLOGY AND RESERVOIR CHARACTERISTICS

The oil pay formation in the Skelly Penrose "B" Unit is the Penrose Sand, a lower member of the Queen formation. The Penrose top is encountered from depths of 3,423 to 3,701 feet; average depth of the Penrose top in the Skelly Penrose "B" Unit is 3,580 feet.

The Penrose zone of the Queen formation is described as lenticular, closely cemented sand lenses contained in a dense dolomitic limestone which was deposited during the Permian age along the western edge of the Central Basin Platform, accompanying a period of mild geologic disturbance. The oil reservoir is contained in a generally northwest trending anticlinal stratigraphic trap which is broken by small "saddles".

One core analysis (of the lower 50 feet of the Penrose Section from the Redfern Development Corporation, Redfern No. 1 in Unit D Section 8-T23S-R37E) is available from the proposed Skelly Penrose "B" Unit area. The following weighted average values were the result of the analysis:

Gross feet analyzed	50.0
Net feet of pay	11.2
Porosity, per cent	9.92
Residual saturations, oil	10.42
Total water	40.40
Permeability, md.	1.12

In the south part of the Penrose "B" Unit area, the upper Penrose is gas productive. One is usually [illegible] section thickness below [illegible] feet is 129 feet in the "B" Unit area.

The primary driving mechanism of the Penrose Sand is solution gas, producing oil of approximately 36 degrees API gravity. The gas zones present in the upper Penrose, as well as the immediately higher Queen and Seven Rivers formations, are present as localized gas stringers, found in the higher portions of the

general antclinal effect. There is no evidence to suggest that the Penrose formation contains enough continuous vertical permeability that the gas zones could have furnished energy as a principal driving force in the production of primary oil from the Penrose.

No estimation of original oil in place or per cent primary recovery is presented in this report. Any estimation of oil in place would be highly conjectural, and is not considered necessary at this time. It is felt that the cooperative pilot waterflood performance affords adequate justification for waterflooding the Penrose section underlying the Skelly Penrose "B" Unit area.

Attachment No. V is an interpretation of the Queen formation structure in the Langlie Mattix area by Skelly Oil Company's Geological Department. Attachment No. VI is a Gamma Ray-Neutron log of a type Langlie Mattix section within the area of the proposed unit.

PLAN OF DEVELOPMENT

Characteristics of the producing formation and the 40-acre spacing development in the Langlie-Mattix Area are well adapted to the 80-acre five-spot injection pattern for waterflooding. Cooperative line flooding between the Skelly Penrose "B" Unit, the Ambassador Langlie-Mattix Unit, the Humble State "M" Lease, the Skelly Penrose "A" Unit, and the Skelly Penrose "C" Unit waterfloods will facilitate secondary operations and avoid undue drainage of unitized substances around the boundaries of these units.

Completion practices, in general, will support the five-spot pattern with a minimum of re-working, for conversion of producing wells to injection wells. The largest per cent of those wells in the Skelly Penrose "B" Unit which were logged, cased, cemented, and perforated in the Penrose Section can be utilized as injection wells by expansion of the 80-acre five-spot pattern in the H. O. Sims pilot area throughout the Ambassador Langlie-Mattix Flood and the proposed Skelly Penrose "A" and "B" Units. The proposed pattern is shown on Attachment VII.

Use of the 80-acre five-spot pattern, except in the south portion of the proposed unit where the pattern may be modified to allow peripheral injection, will minimize recompletion costs and permit deferment of the expense of recompleting the plugged and abandoned wells and drilling the two undrilled locations. The advisability of these recompletions and drilling possibilities can be more definitely determined as secondary operations proceed. The diagrammatic sketches of the injection wells is shown as Attachment No. VIII.

Provision for plant equipment include three triplex pumps capable of furnishing 9,077 barrels injection water per day at 1845 psi, which is the maximum requirements of the flood. This volume approximates 275 barrels per injection well per day under full operation, and compares favorably with injection rates and

pressures noted in the pilot project nearby. Initial injection pressures at these rates are expected to be well under 1000 psi.

WATER SUPPLY

The Penrose "B" Unit will purchase injection water from the Skelly operated Jal Water System. The water source for the Jal Water System will be Seven Rivers and Capitan Reef water supply wells located approximately eight (8) miles southwest of the unit.

UNITIZATION AND PARTICIPATION

The Working Interest Owners of leases within the proposed Skelly Penrose "B" Unit have unitized their leases and selected Skelly Oil Company to be the Unit Operator. The effective date of the unit was July 1, 1965.

The participation formula that was used as an equitable method of determining participation in the unit is as follows:

Phase I: 50% Current Production (1-1-63 to 4-1-63) plus

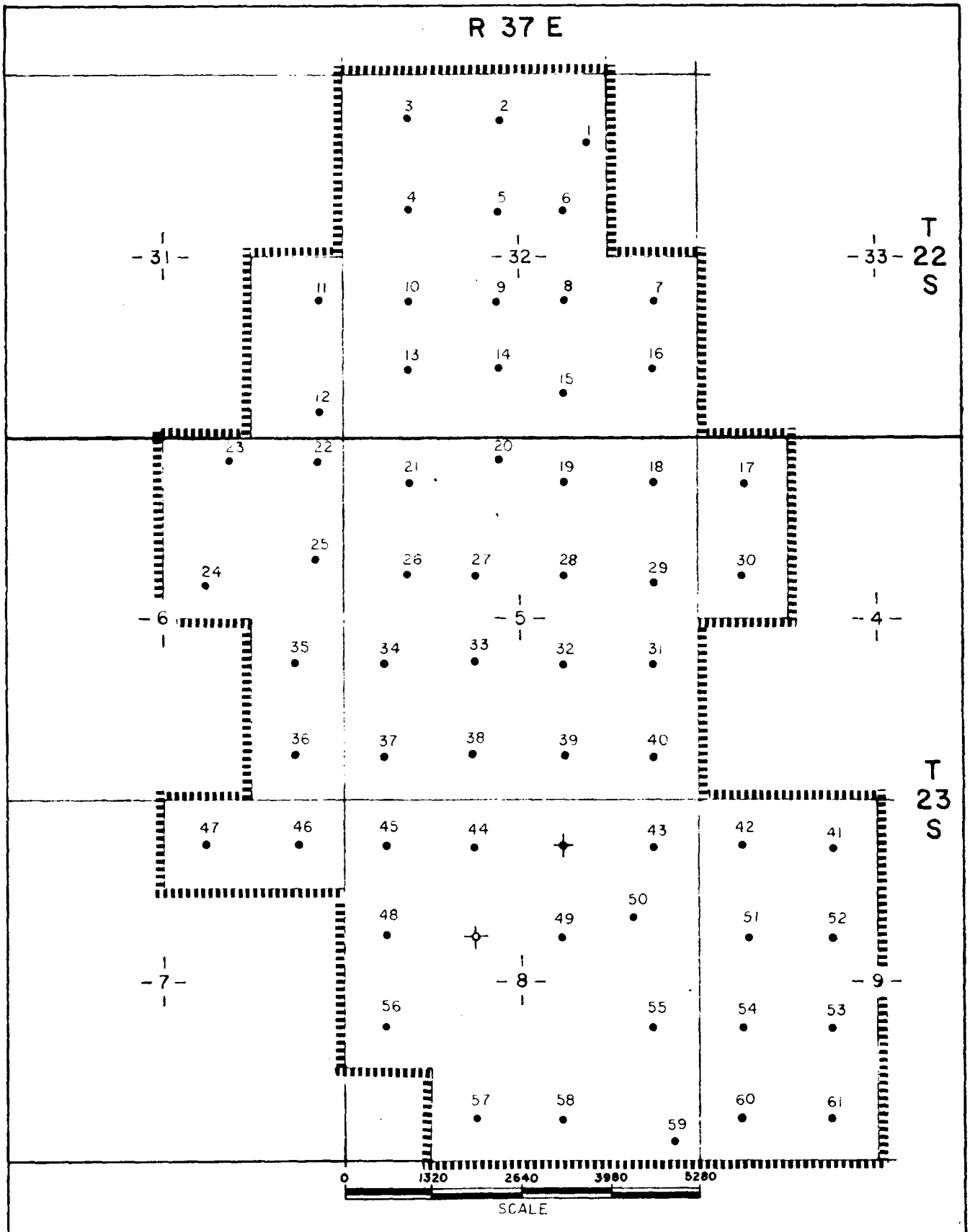
50% Remaining Primary Recovery @ 4-1-63

Phase II: 100% Ultimate Primary Recovery

Phase I is to remain in effect until a total of 187,382 barrels of oil have been produced from the original Unit Area from and after May 1, 1965. Phase II will remain in effect thereafter.

LIST OF ATTACHMENTS

Attachment No.	Title
I	Penrose "B" Unit Map
II	Map of Pilot Waterflood Area
III	Map of Skelly Penrose "B" Unit Area
IV	Projected Secondary Performance
V	Structure Map of Queen Sand
VI	Typical log of Langlie-Mattix Section
VII	Injection Pattern
VIII	Diagrammatic Sketch of Injection Wells

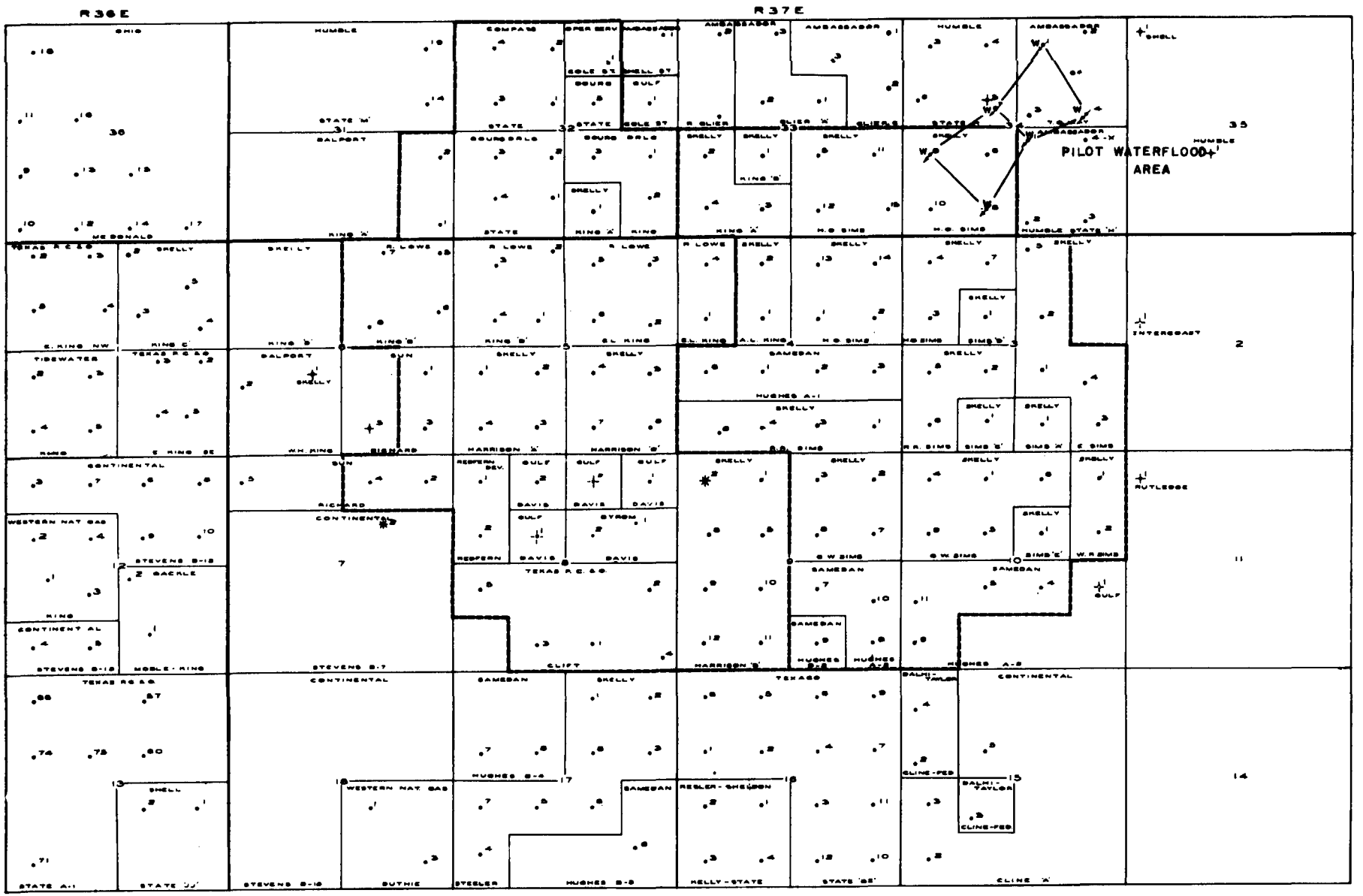


SKELLY PENROSE "B" UNIT

LEA COUNTY, NEW MEXICO

ATTACHMENT I

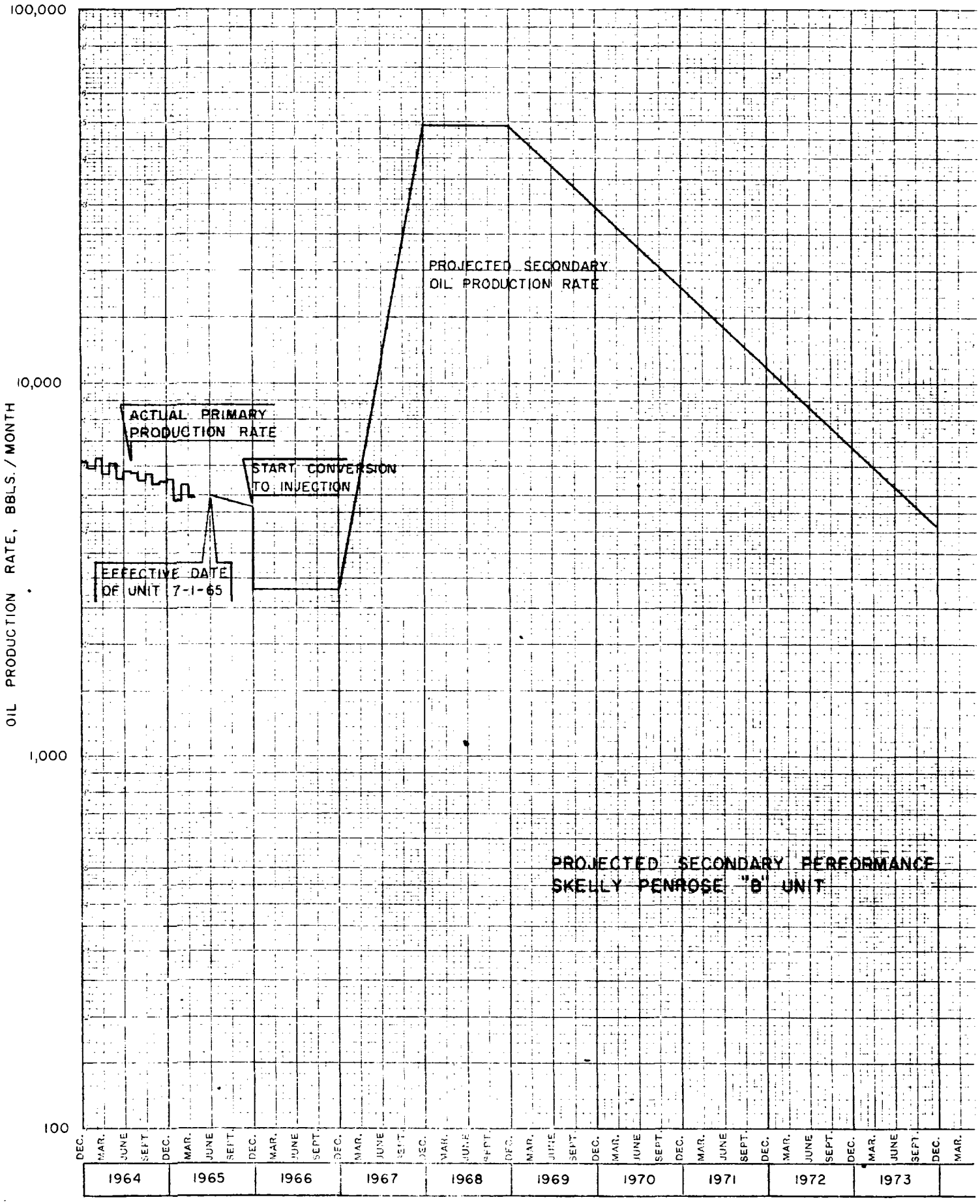
Unit Map

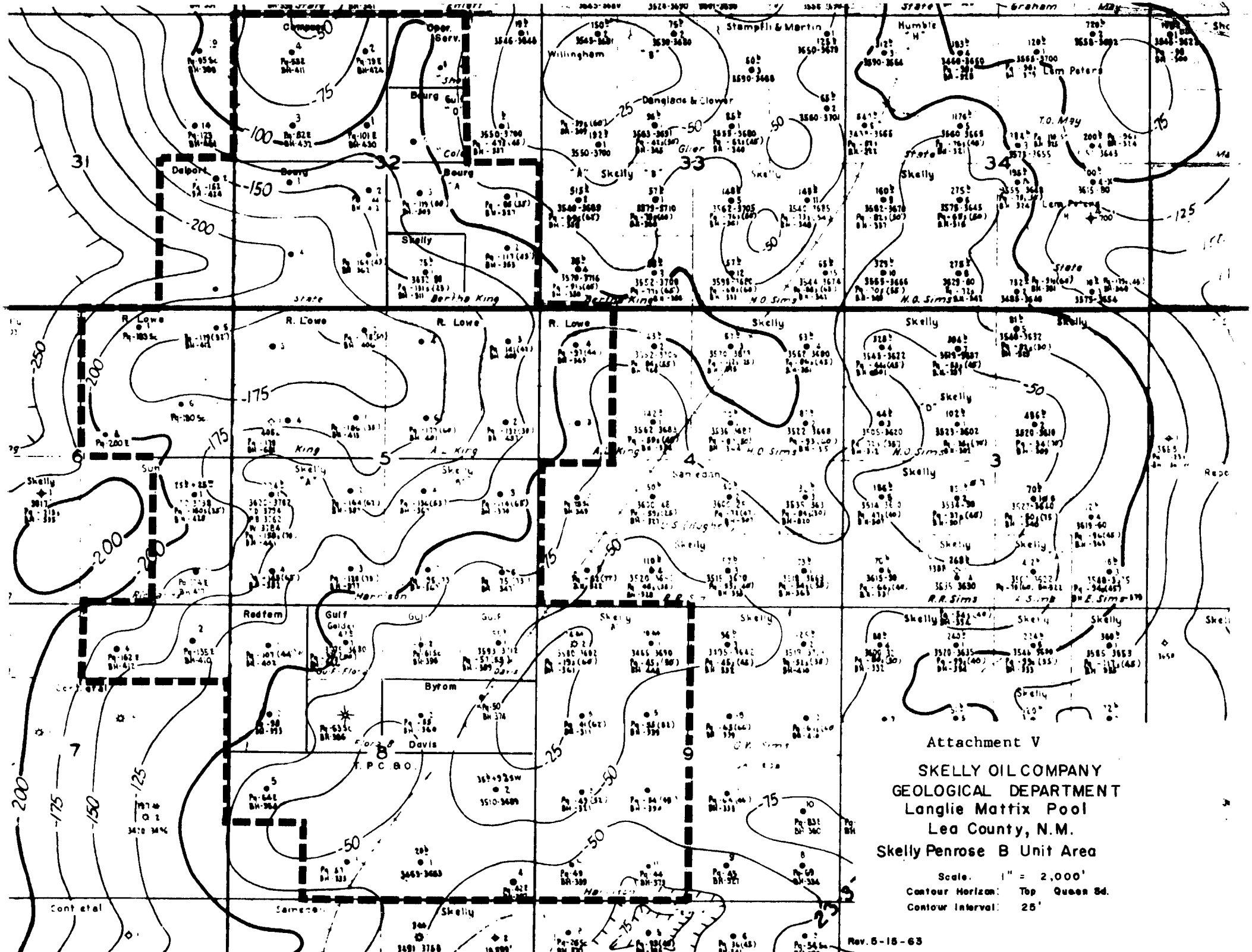


SKELLY PENROSE UNITS-LANGLIE MATTIX POOL
LEA COUNTY, NEW MEXICO

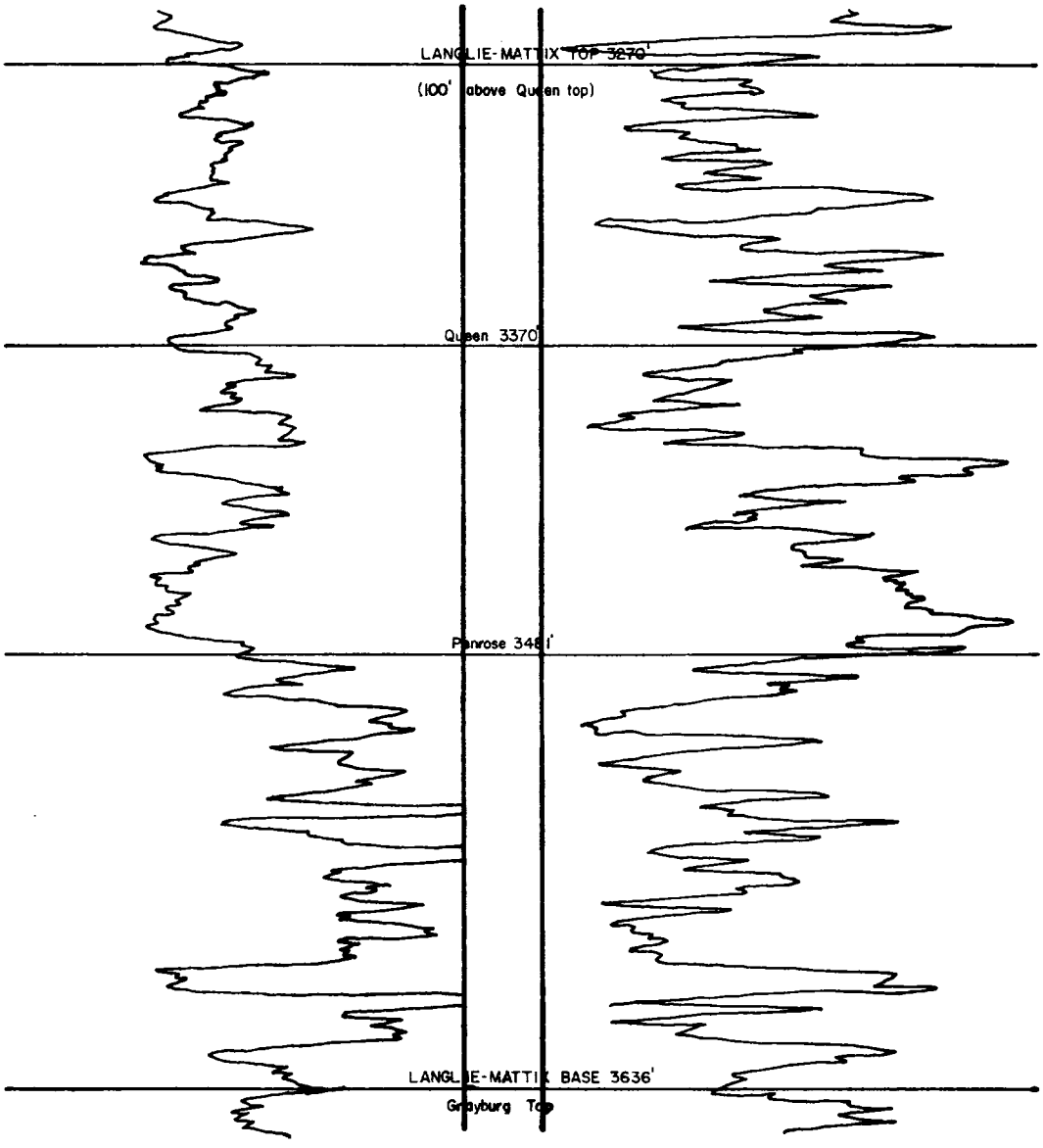
ATTACHMENT II

ATTACHMENT IV



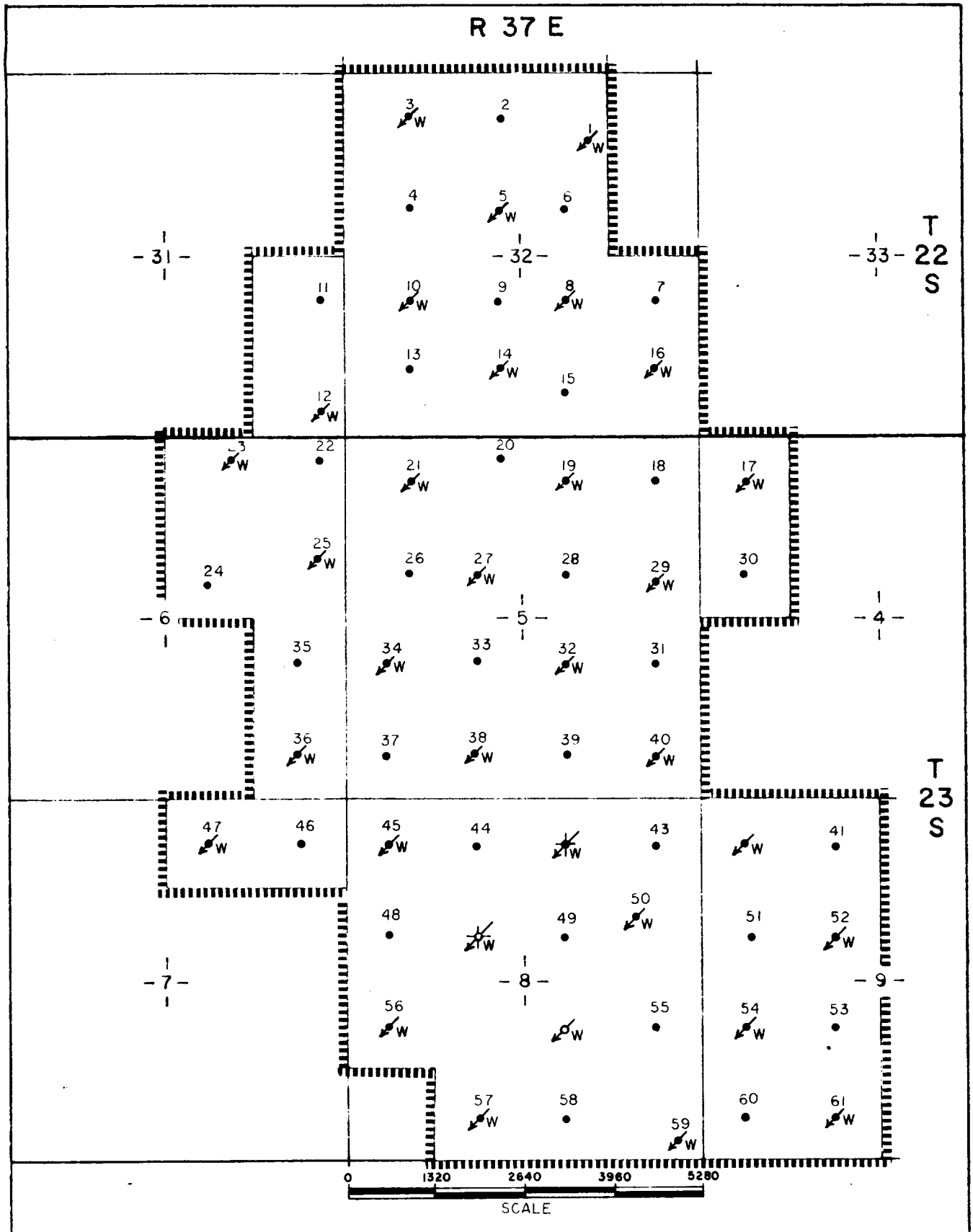

Attachment V
SKELLY OIL COMPANY
GEOLOGICAL DEPARTMENT
Langlie Mattix Pool
Lea County, N.M.
Skelly Penrose B Unit Area
Scale. 1" = 2,000'
Contour Horizon: Top Queen Sd.
Contour Interval: 25'
Rev. 6-18-63

ATTACHMENT VI



TYPE LOG LANGLIE-MATTIX SECTION

SKELLY HARRISON "B" NO. 10

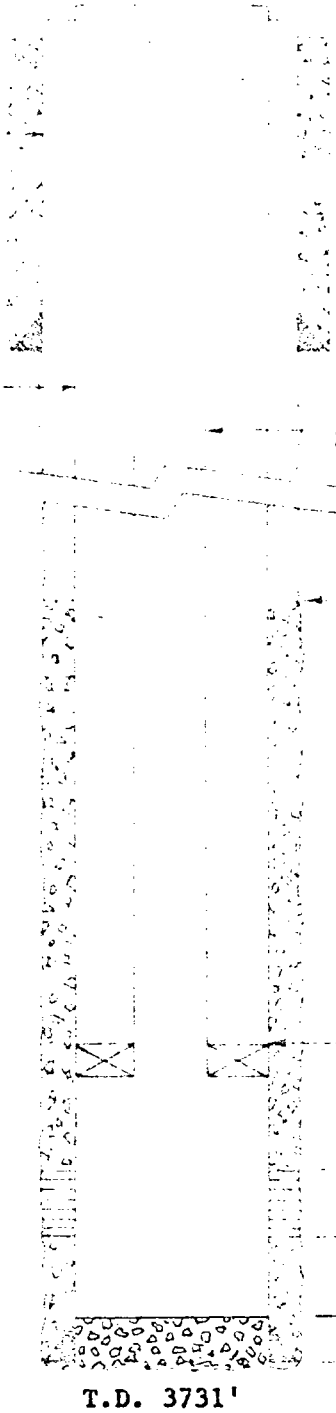


SKELLY PENROSE "B" UNIT

LEA COUNTY, NEW MEXICO

ATTACHMENT VII

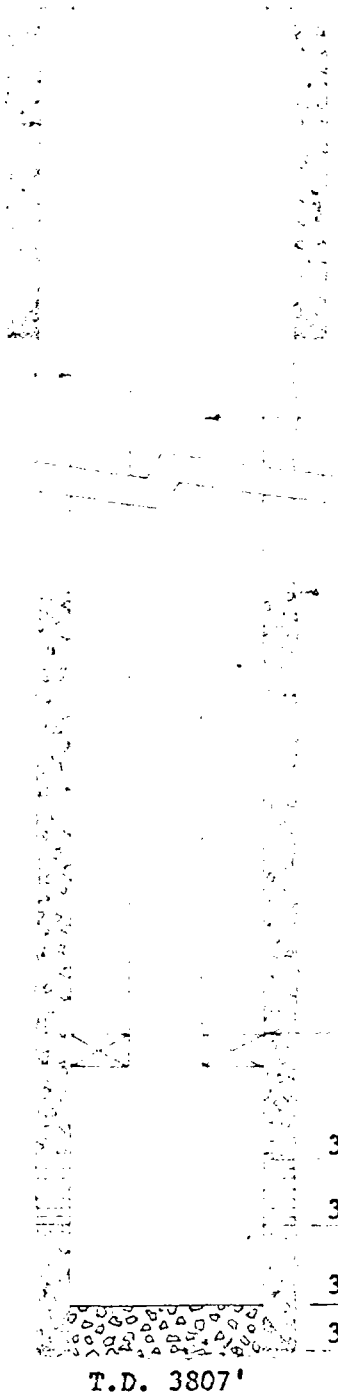
Operators Service Co.
Cole - State No. 1
990' FNL & 1650' FEL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 1



SKELLY OIL CO.
EXHIBIT NO. B

Compass Exploration, Inc.
State No. 4 - 32
660' FNL & 990' FWL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 3

Compass Exploration, Inc.
State No. 1 - 32
1980' FNL & 2310' FWL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 5



Elevation 3364' D.F.

8 5/8" Csg.
Set with 200 Sacks

320'

5 1/2" Csg.
Set with 250 Sacks

2 3/8" OD Tubing

Calculated Top Cement 2712'

Top Queen 3477'

5 1/2" X 2" HOWCO R-3 Tension
Packer Set @ Approx. 3538'

Top Penrose 3588'

3588'

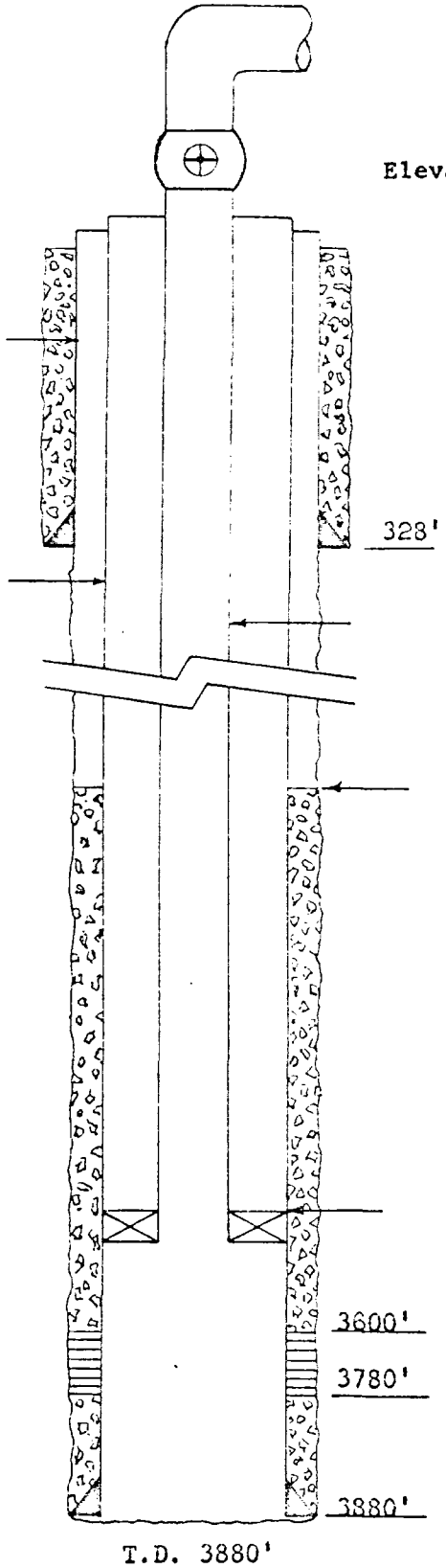
3726'

3775'

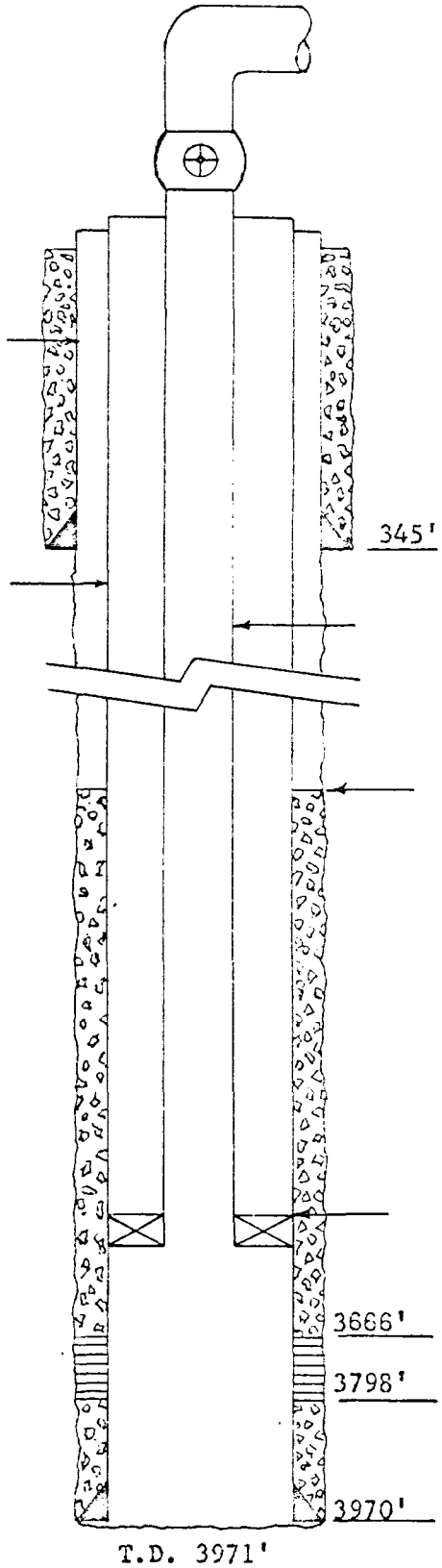
3807'

T.D. 3807'

Oscar Bourg Drilling Company
King No. 3
1980' FSL & 1980' FEL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 8



Oscar Bourg Drilling Company
State No. 3
1980' FSL & 990' FWL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 10



Elevation 3577' D.F.

8 5/8" Csg.
Set with 250 Sacks

345'

5 1/2" Csg.
Set with 250 Sacks

2 3/8" OD Tubing

Calculated Top Cement 2875'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3616'

Top Queen 3546'

Top Penrose 3653'

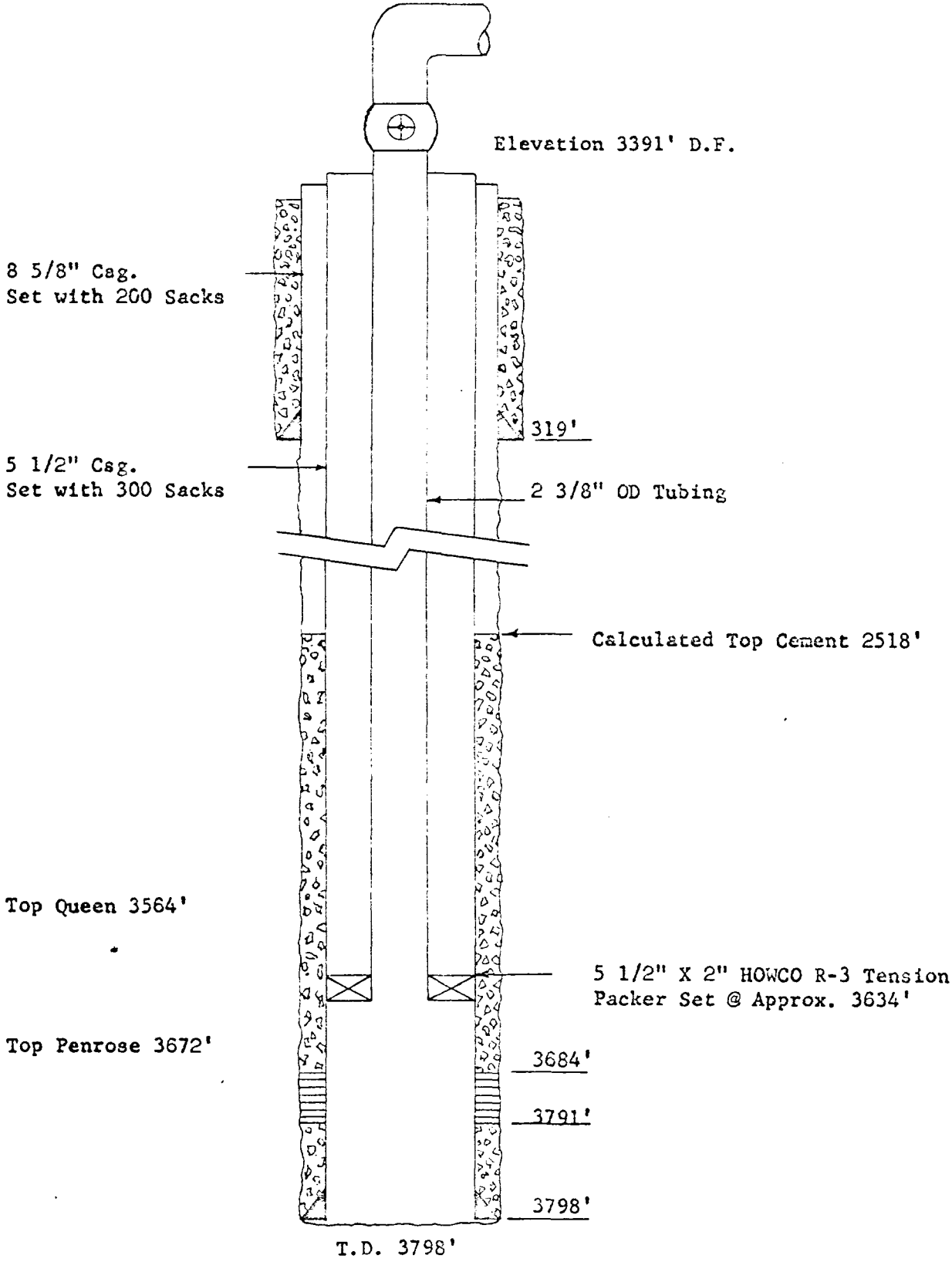
3666'

3798'

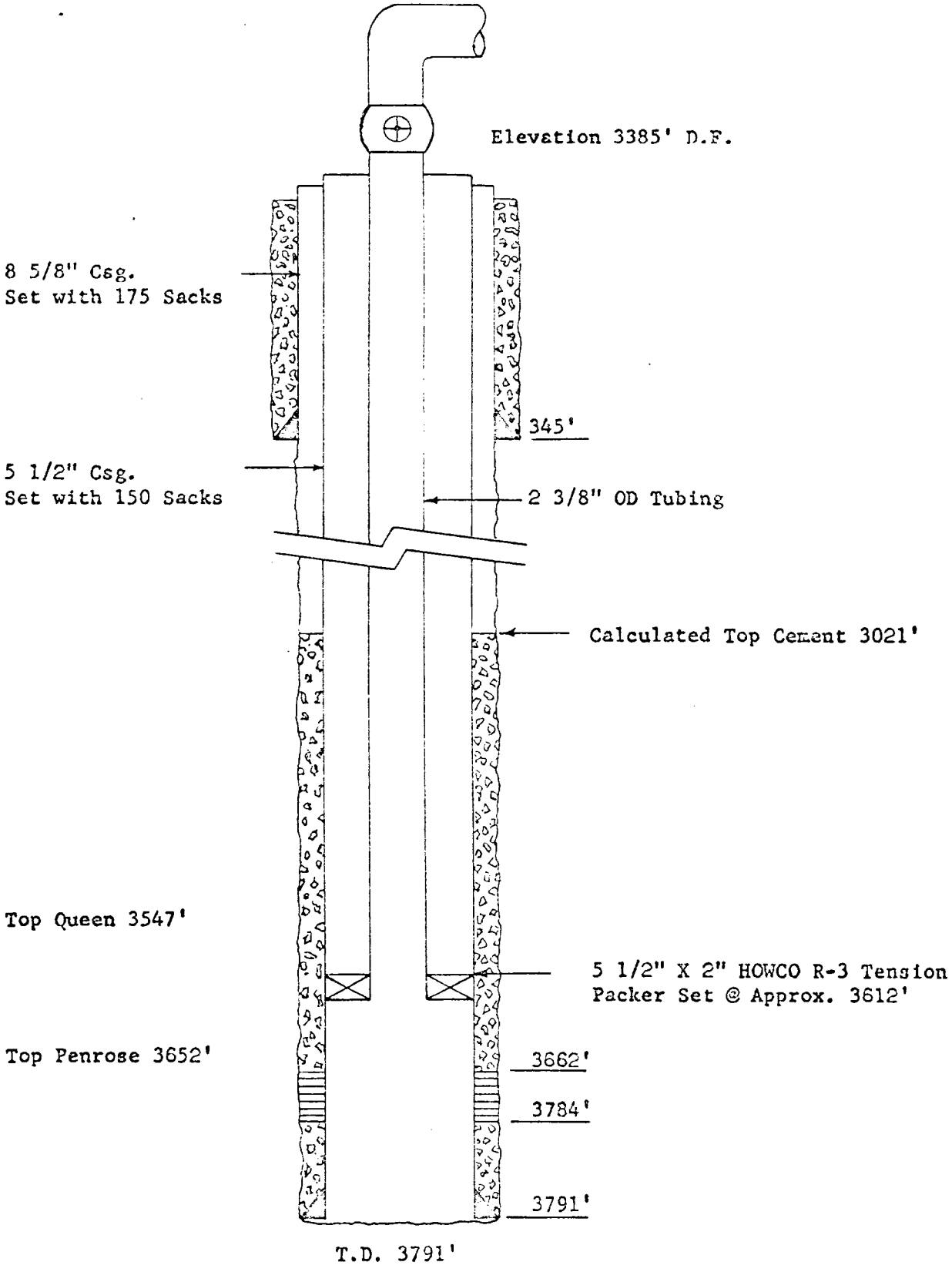
3970'

T.D. 3971'

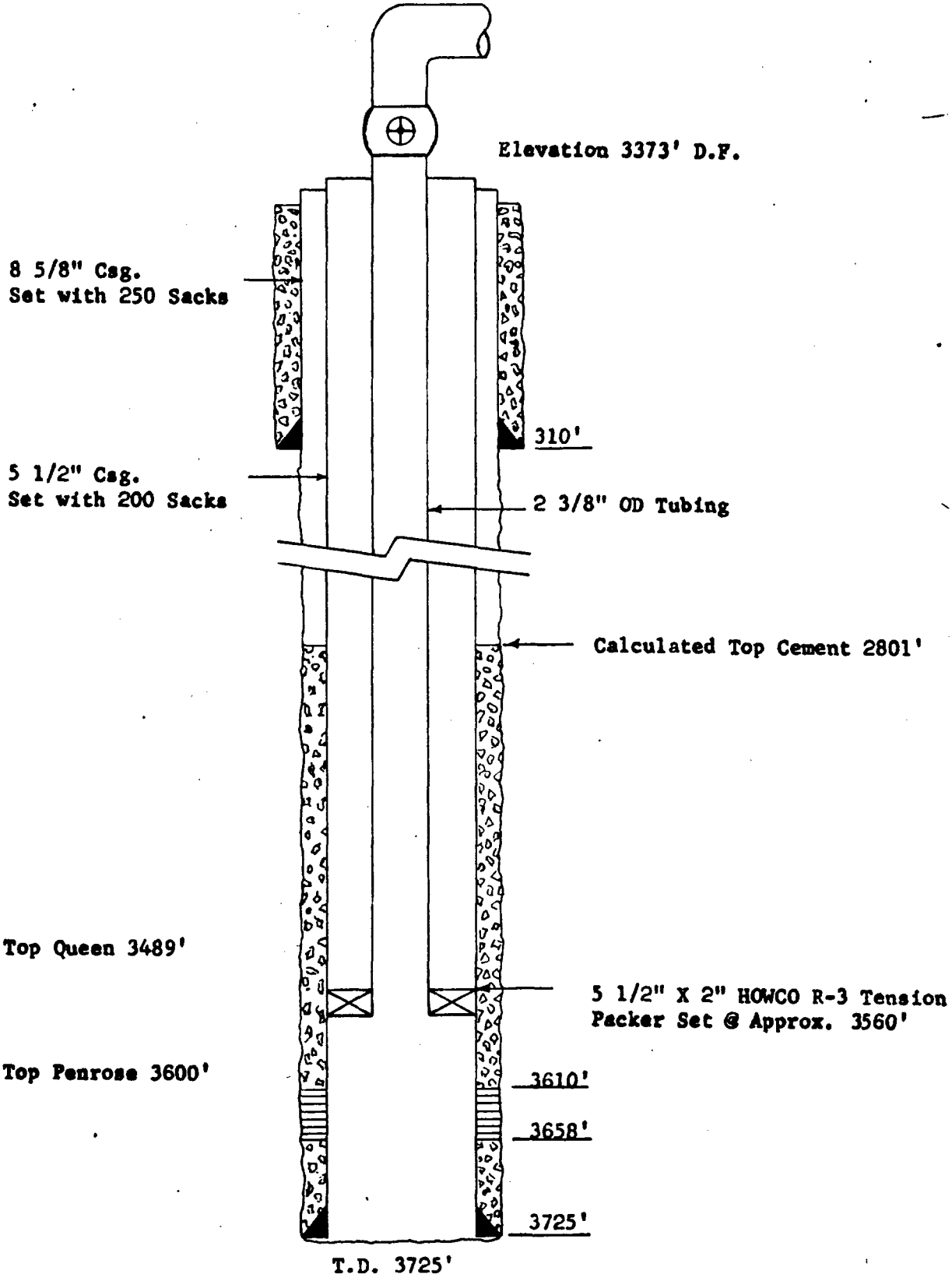
Dalport Oil Corporation
E. F. King "A" No. 1
330' FSL & 330' FEL Section 31, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 12



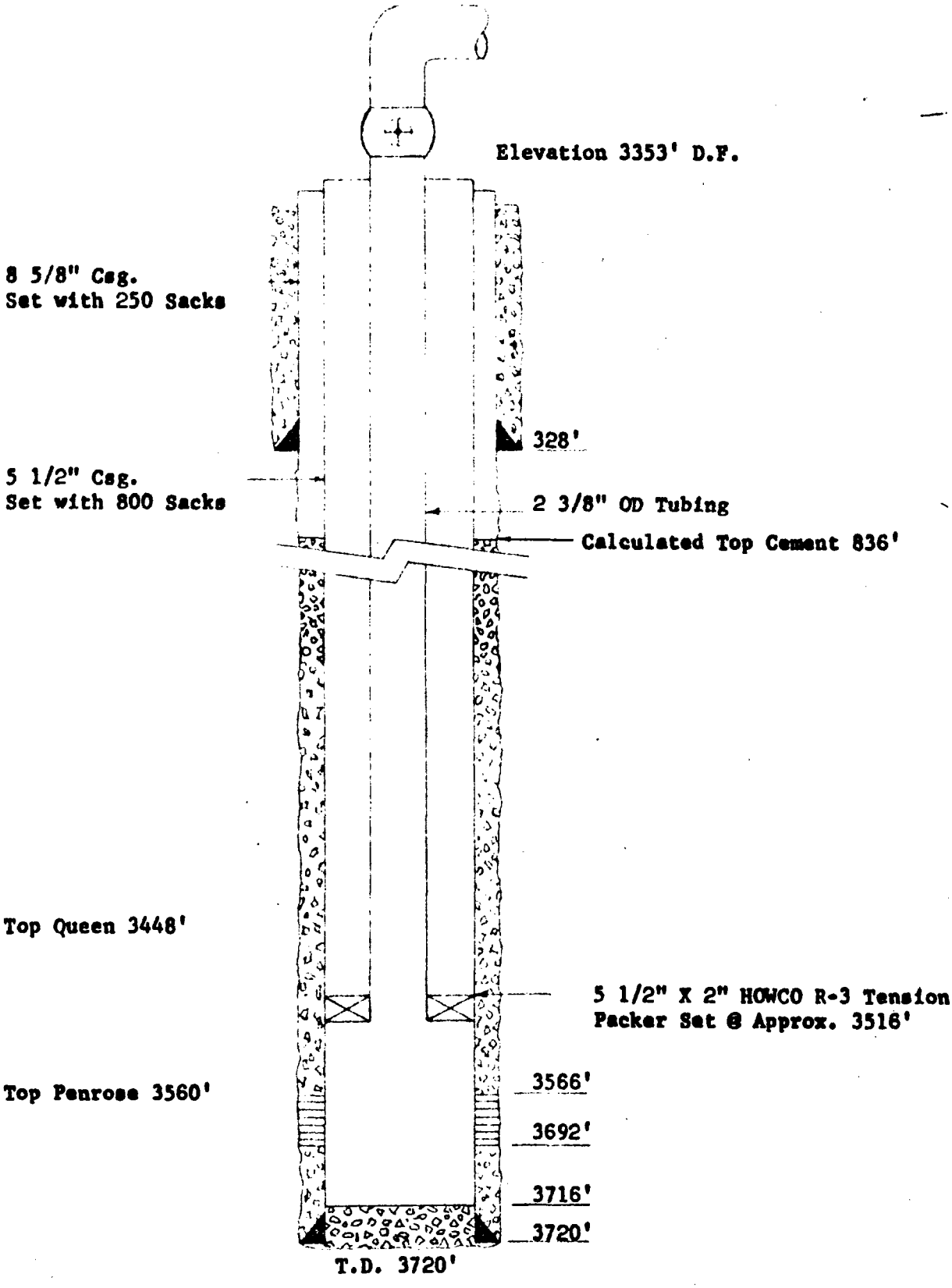
Bourg Drilling Co.
State No. 1
2310' FWL & 990' FSL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 14



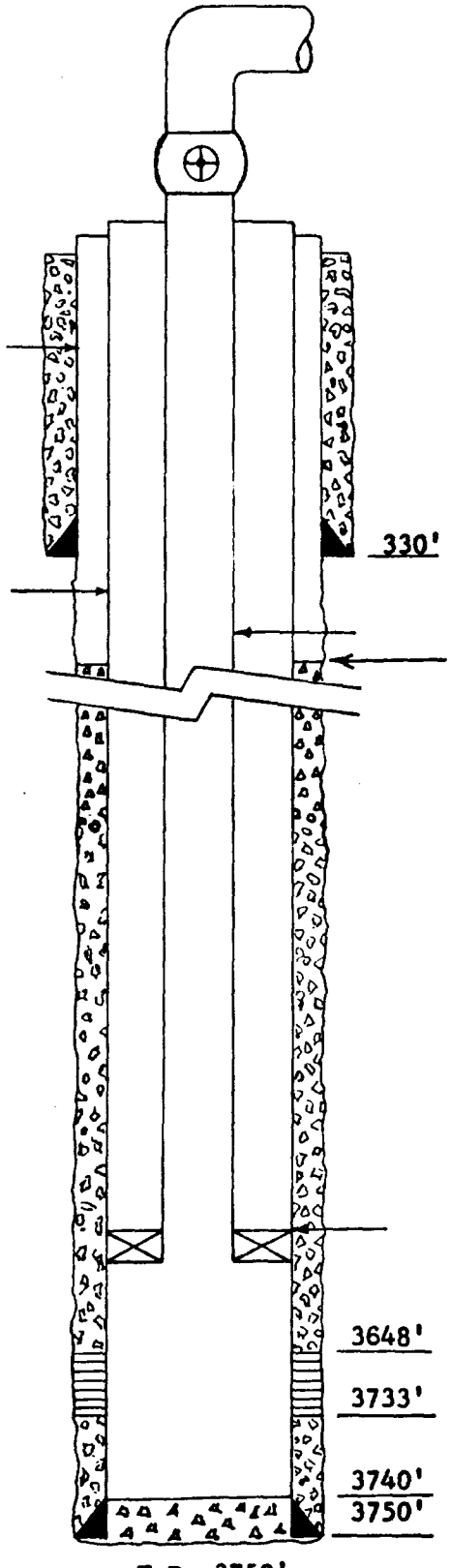
Bourg Drilling Co.
King No. 2
990' FSL & 660' FEL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 16



Ralph Lowe
E. F. King No. 4
660' FN & WL Section 4, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 17



Ralph Lowe
E. F. King No. 5
660' FNL & 1980' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 19



Elevation 3365' D.F.

8 5/8" Csg.
Set with 280 Sacks

330'

5 1/2" Csg.
Set with 950 Sacks

2 3/8" OD Tubing

Calculated Top Cement 474'

Top Queen 3538'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3598'

Top Penrose 3644'

3648'

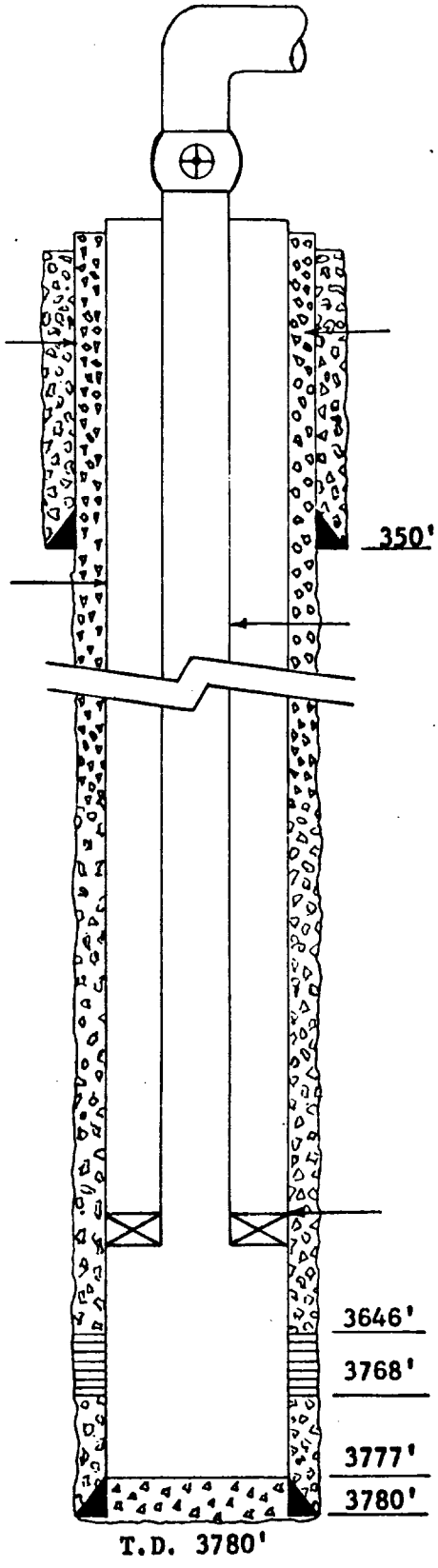
3733'

3740'

3750'

T.D. 3750'

Ralph Lowe
King "B" No. 3
660' FNL & 990' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 21



Elevation 3367 D.F.

Cement Circulated

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Set with 200 Sacks

350'

5 1/2" Csg.
Set with 1300 Sacks

2 3/8" OD Tubing

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3596'

Top Queen 3536'

Top Penrose 3640'

3646'

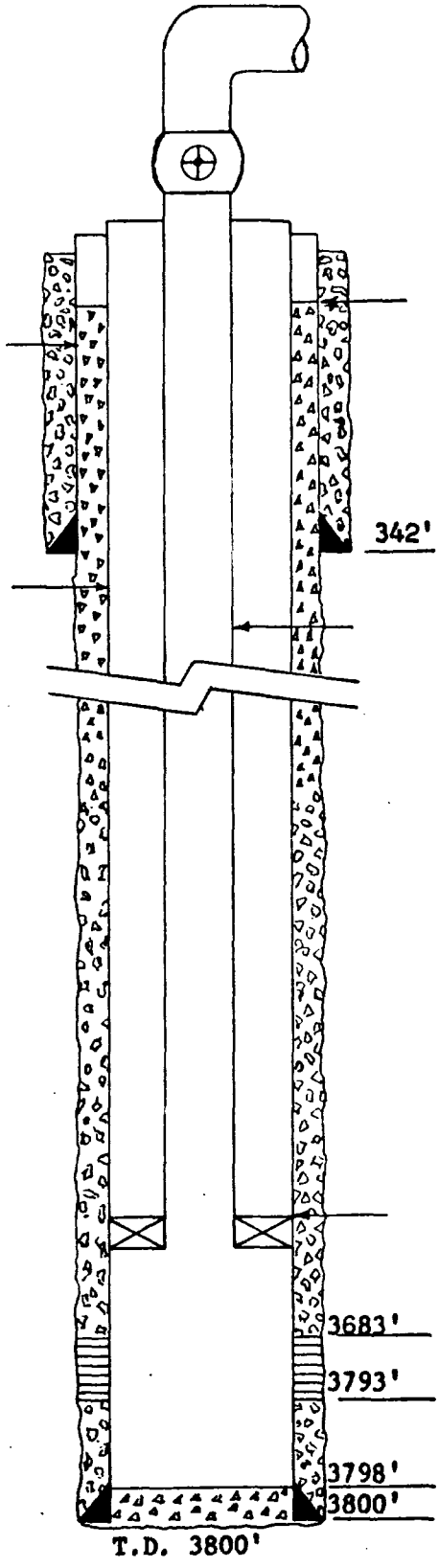
3768'

3777'

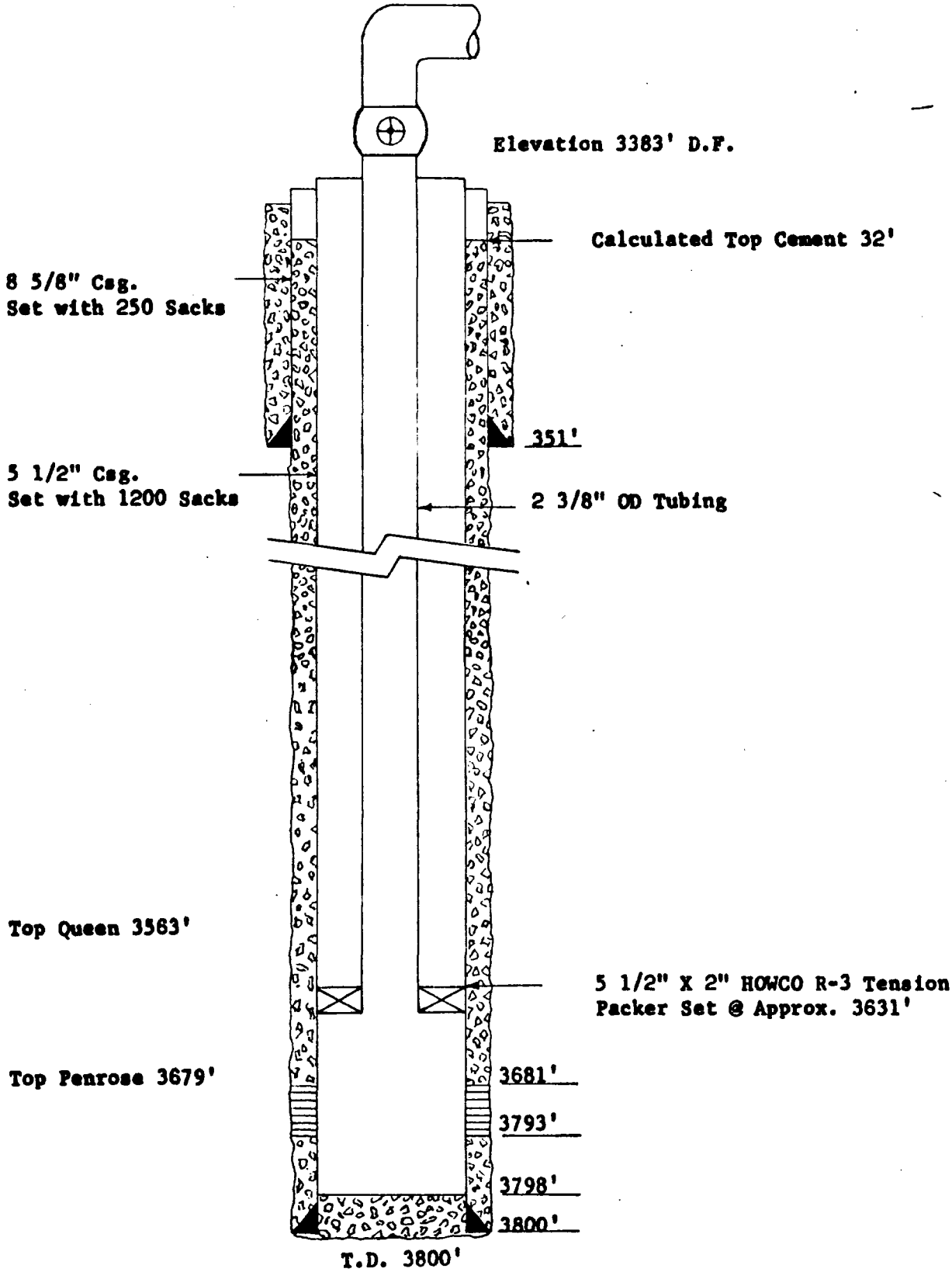
3780'

T.D. 3780'

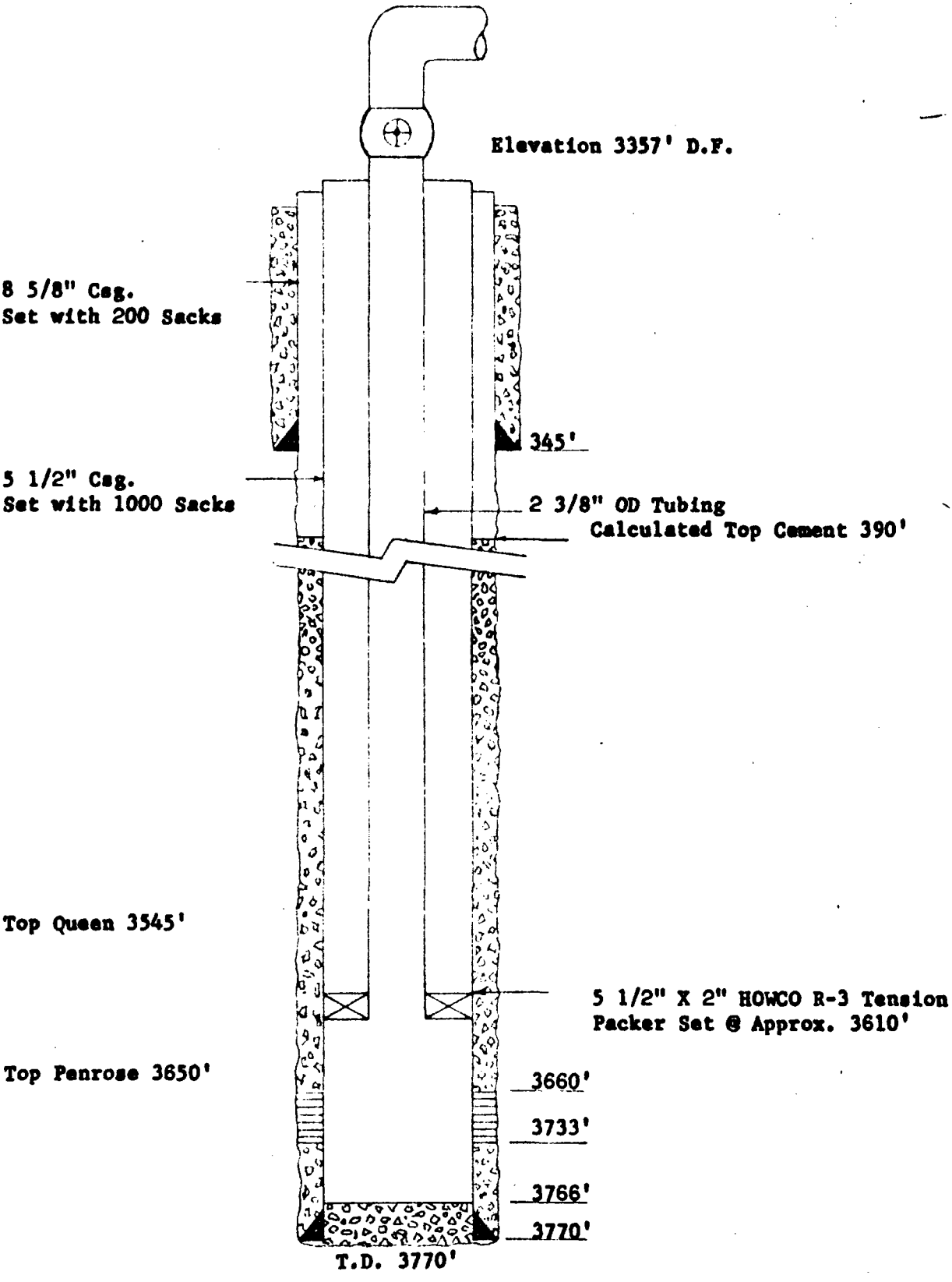
Ralph Lowe
King "B" No. 7
330' FNL & 1650' FEL Section 6, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well - - - - - -
Skelly Penrose "B" Unit Well No. 23



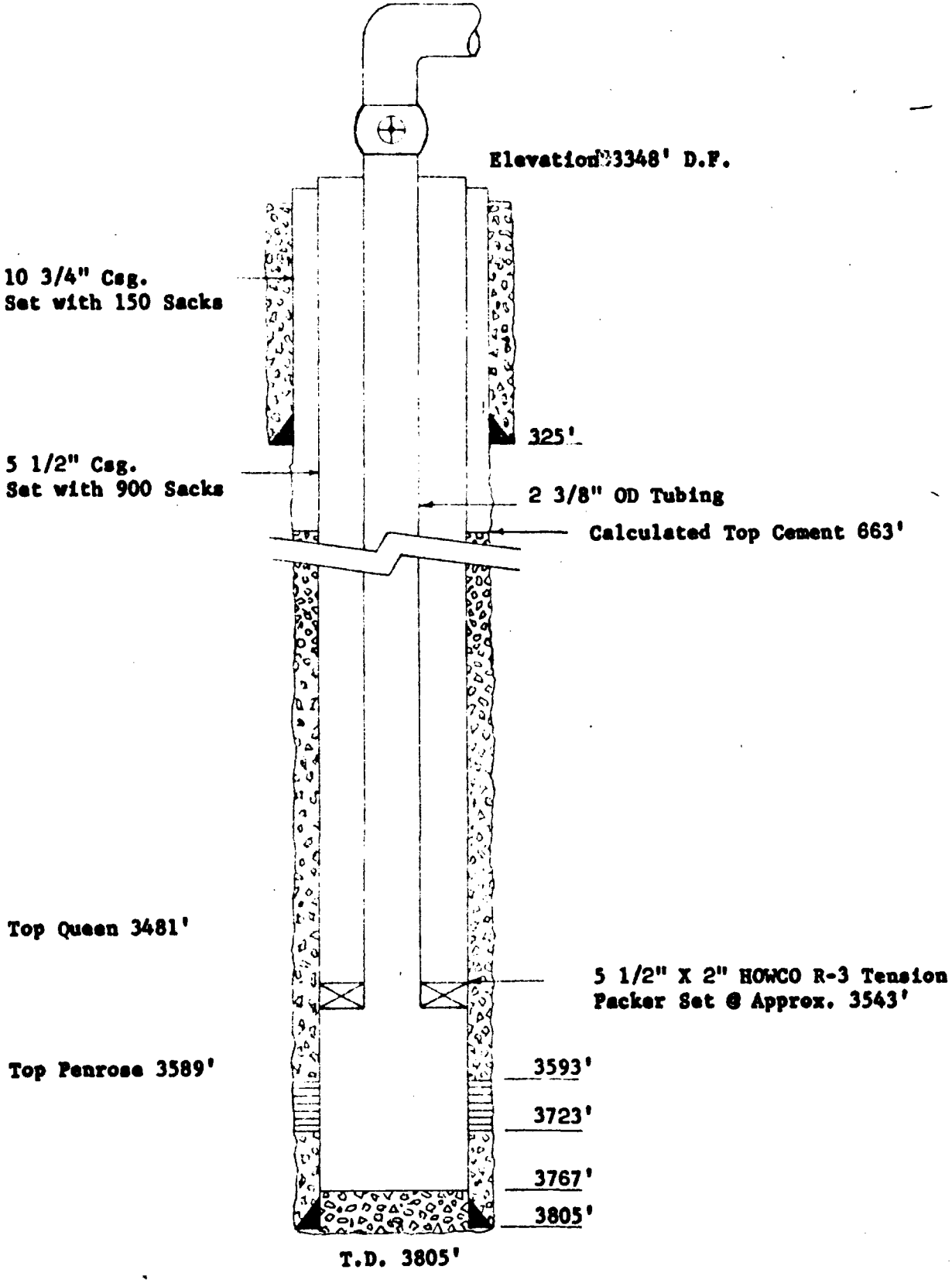
Ralph Lowe
King "B" No. 6
1788' FNL & 330' FEL Section 6, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 25



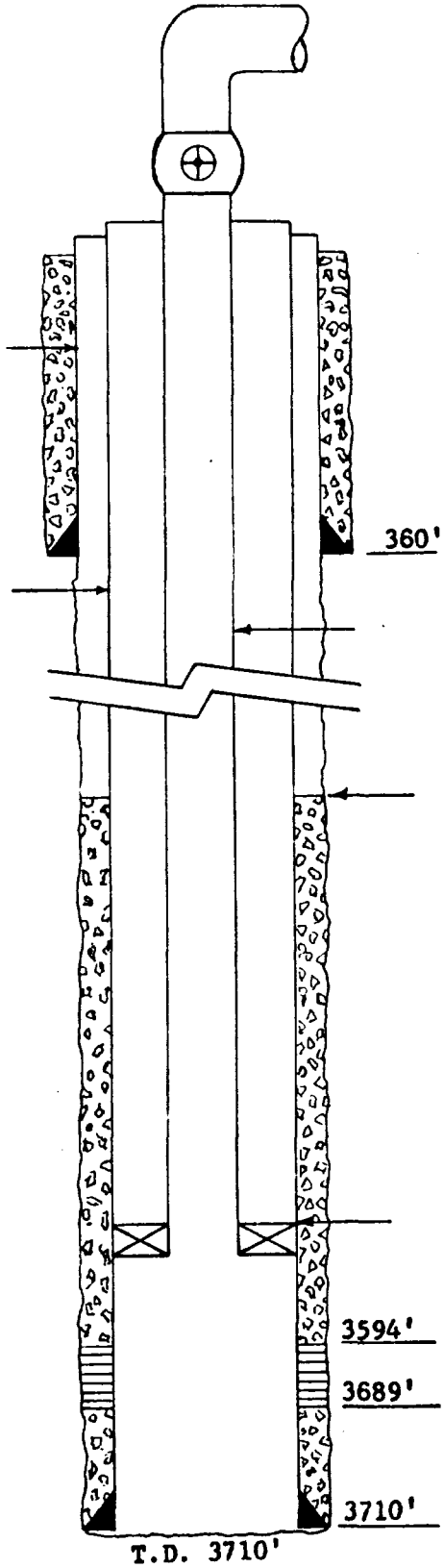
Ralph Lowe
King "B" No. 1
1980' FNL & 1980' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 27



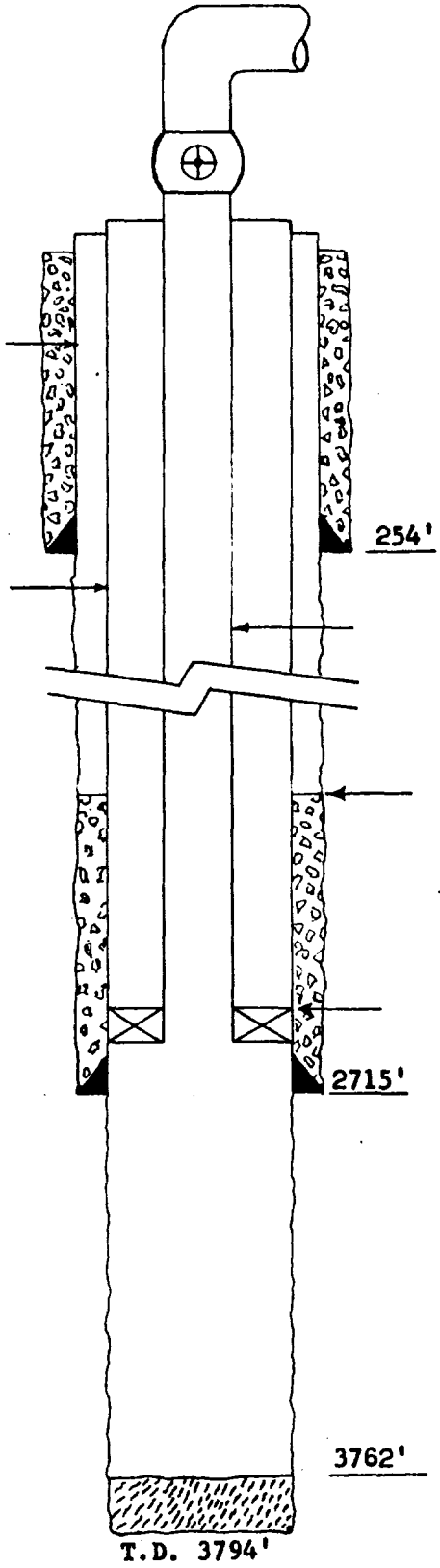
Ralph Lowe
E. F. King No. 2
2112 FNL & 660' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 29



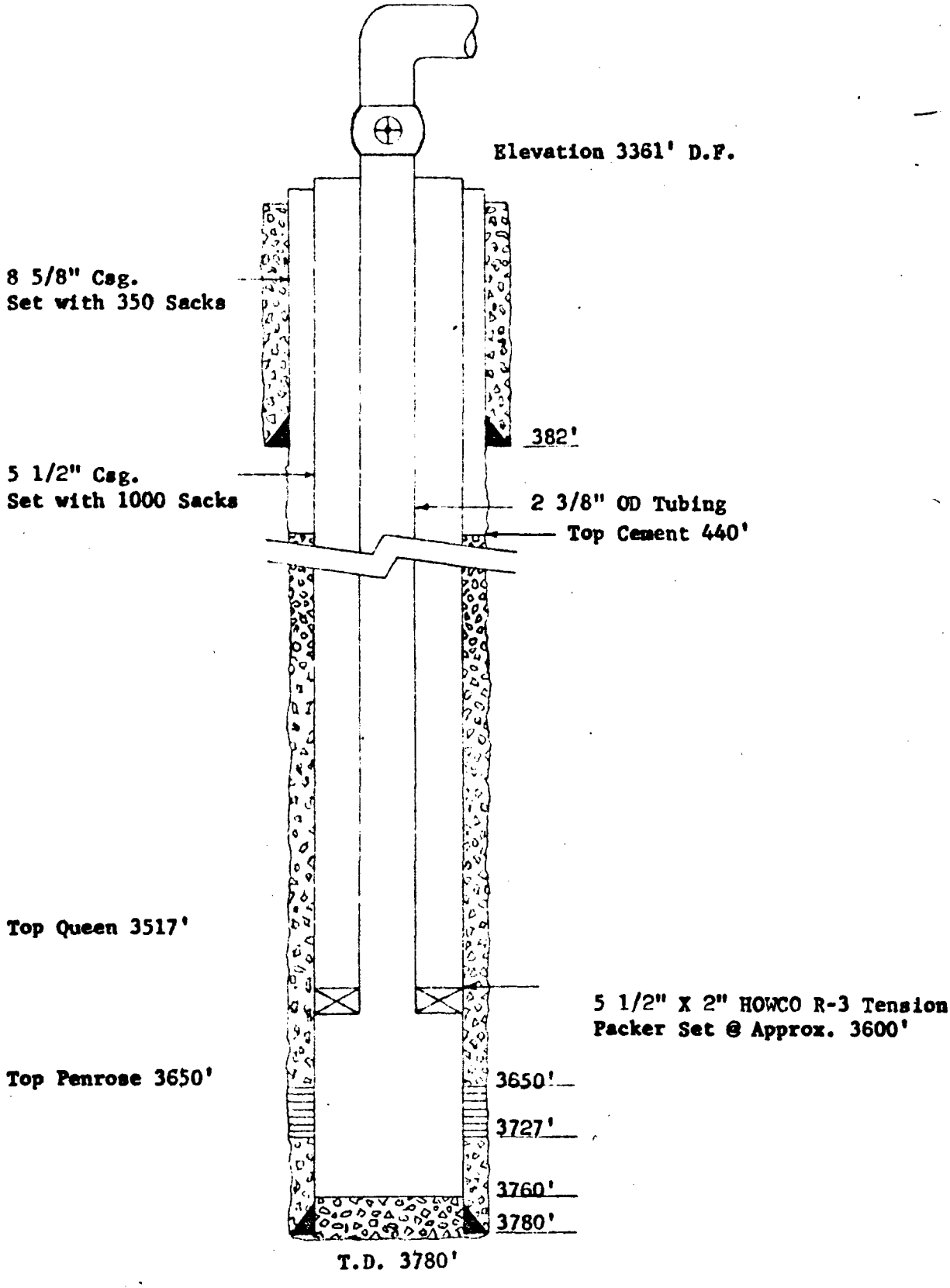
Skelly Oil Company
Harrison "B" No. 4
1980' FSL & 1980' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 32



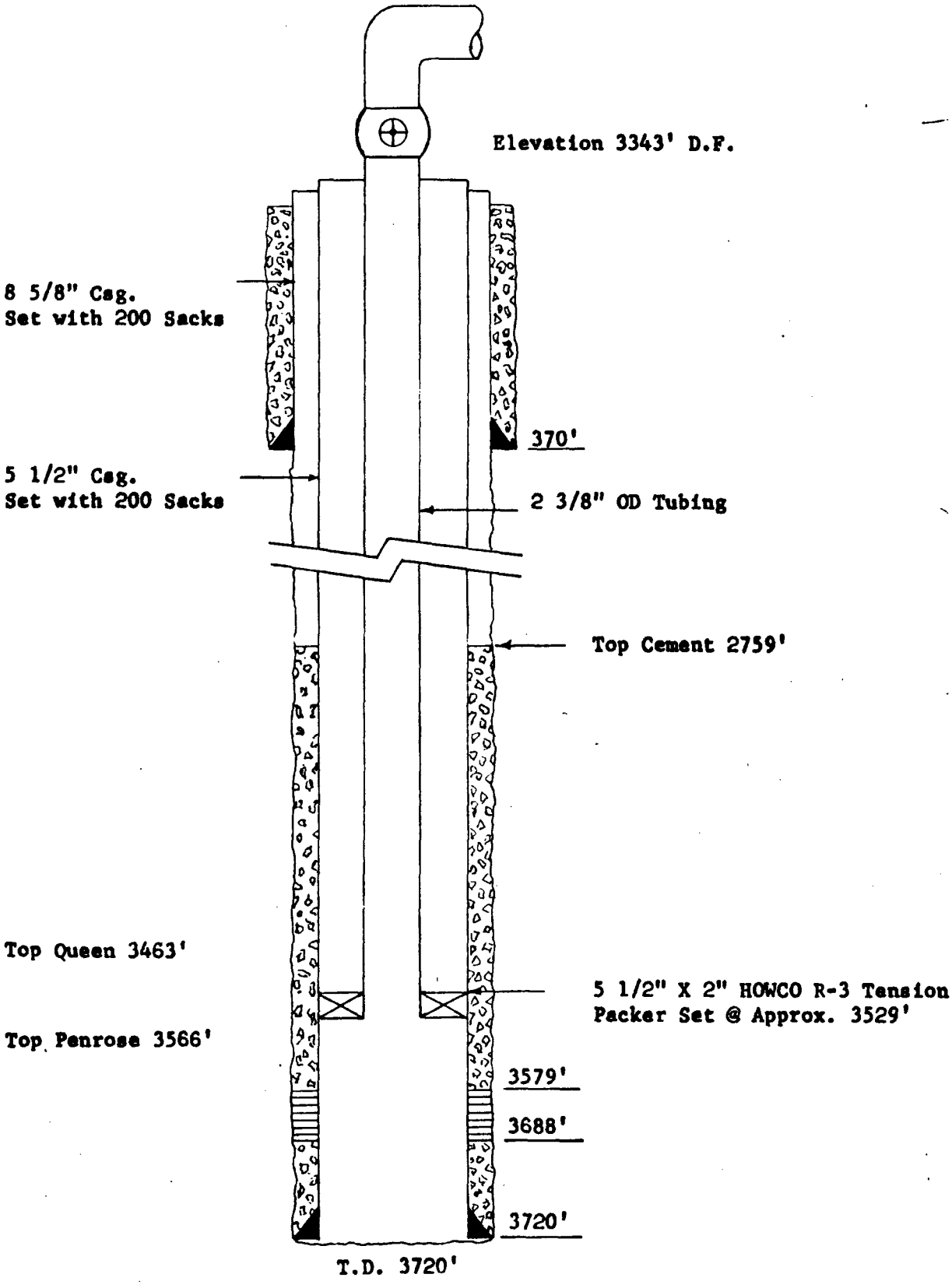
Skelly Oil Company
Harrison "A" No. 1
1980' FSL & 660' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 34



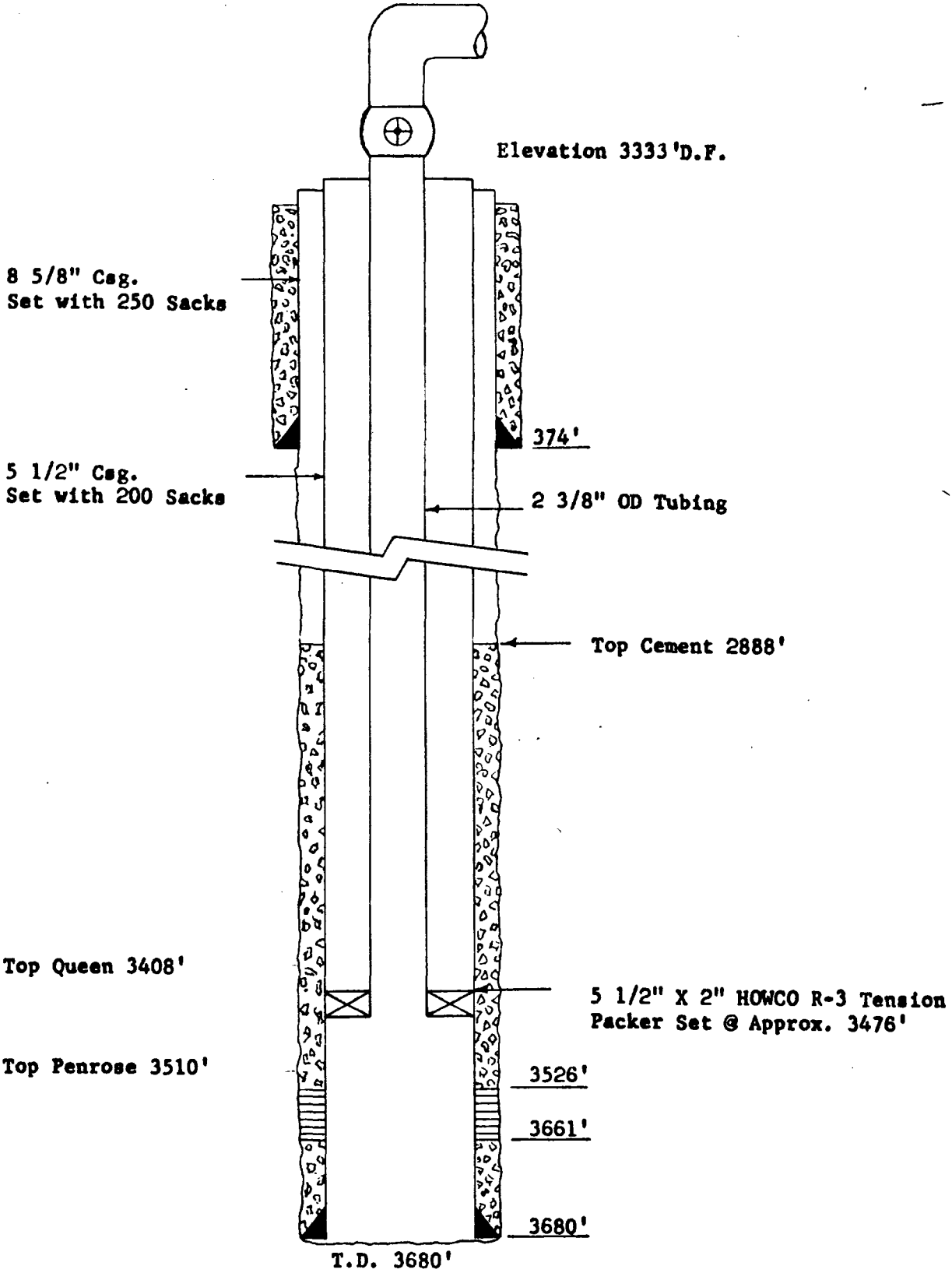
Sun Oil Company
Richards No. 3
660' FSL & 660' FEL Section 6, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 36



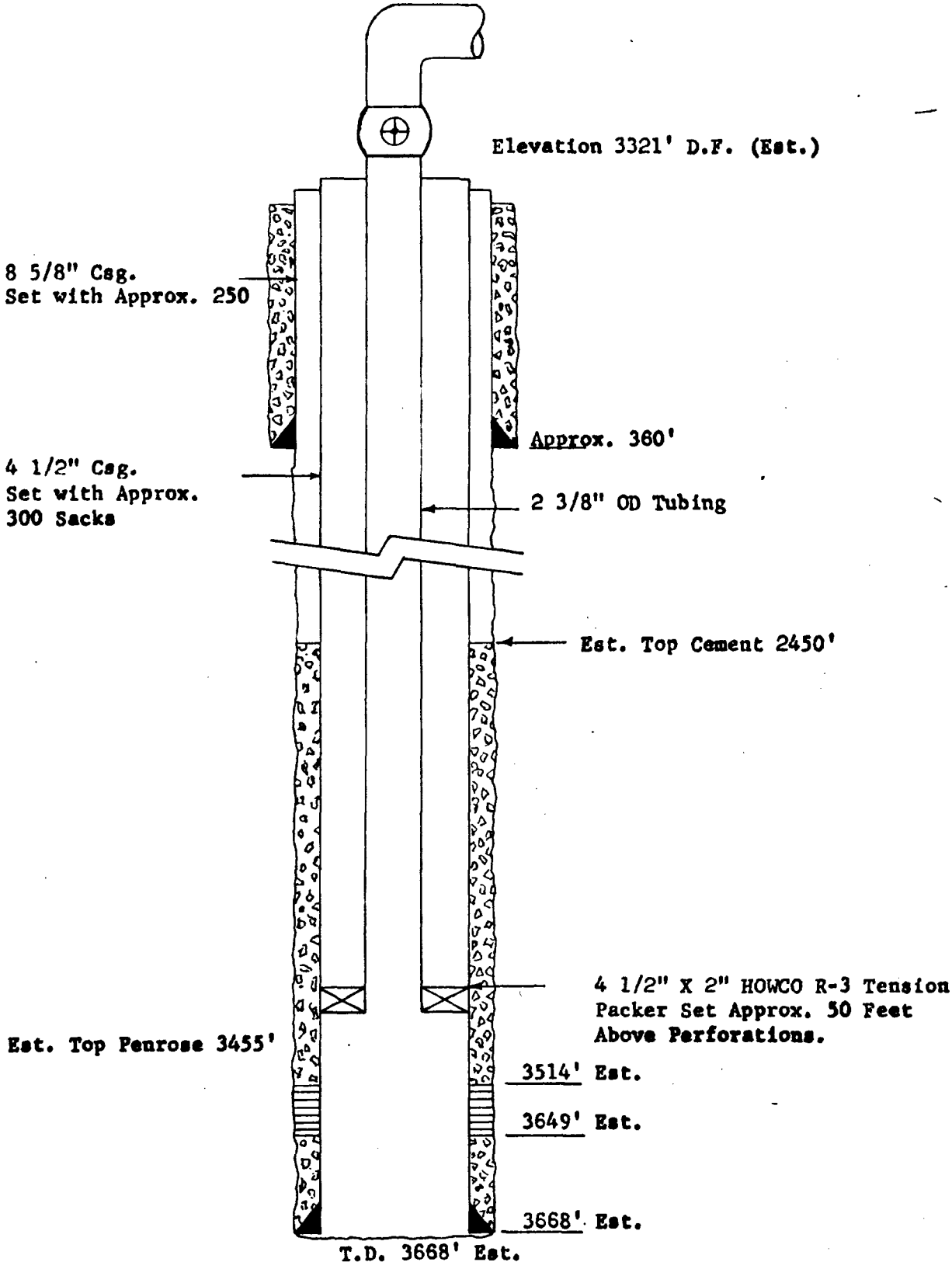
Skelly Oil Company
Harrison "A" No. 3
660' FSL & 1980' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 38



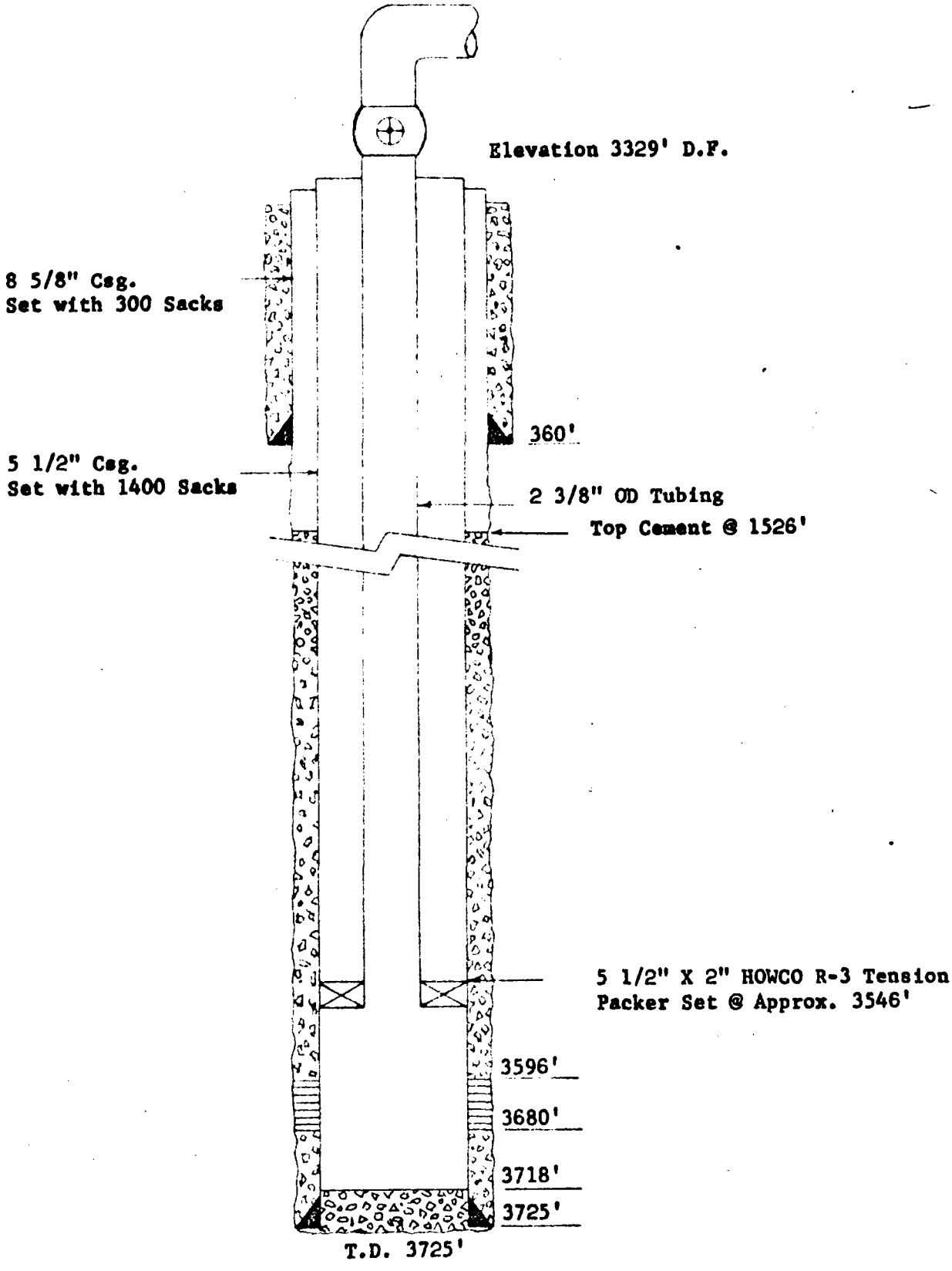
Skelly Oil Company
Harrison "B" No. 6
660' FSL & 660' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 40



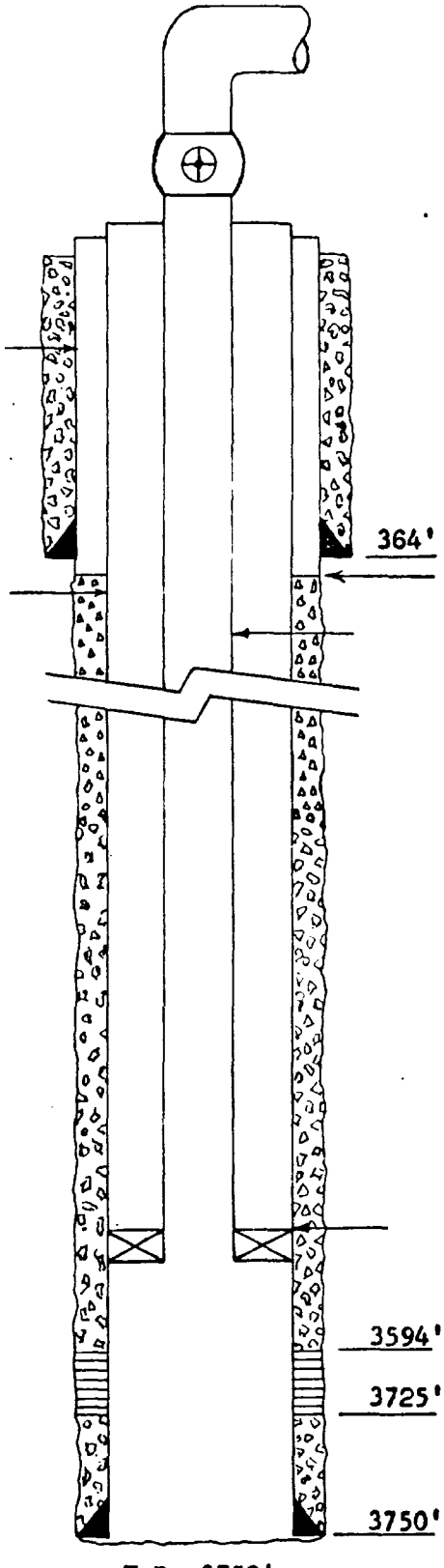
Skelly Oil Company
Skelly Penrose "B" Unit Well No. (To be Numbered)
To Be Drilled In Unit D, Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well



Gulf Oil Corporation
Black Davis No. 1
1980' FNL & 1980' FWL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. (Not Numbered)



Redfern Development Corporation
J. J. Redfern No. 1
660' FNL & 660' FWL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 45



Elevation 3335' D.F.

8 5/8" Csg.
Set with 250 Sacks

364'

5 1/2" Csg.
Set with 1000 Sacks

Calculated Top Cement 370'

2 3/8" OD Tubing

Top Queen 3468'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3544'

3594'

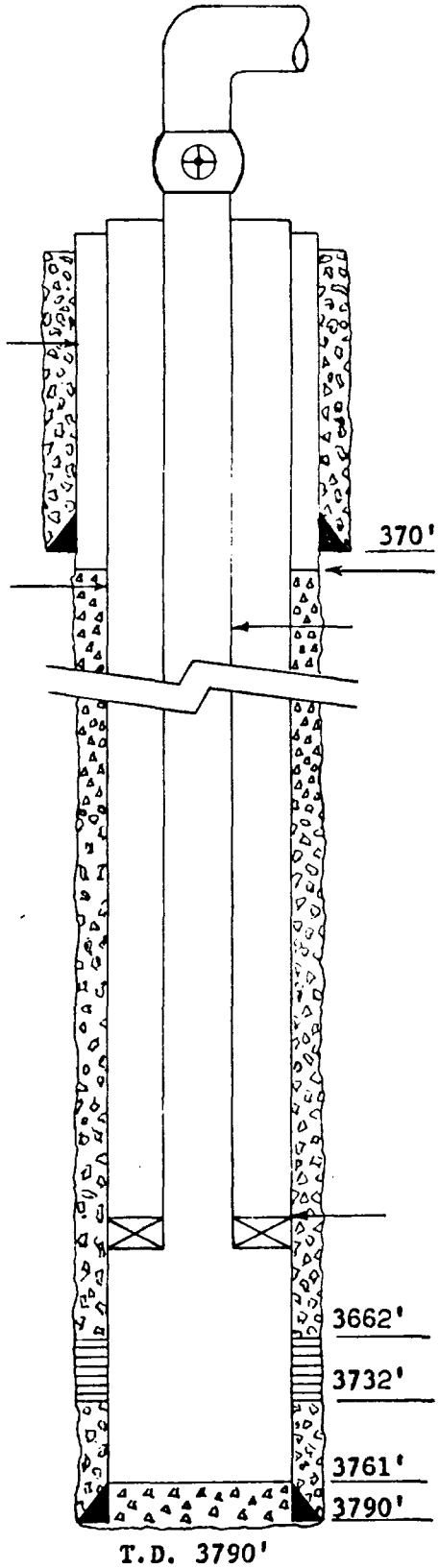
Top Penrose 3572'

3725'

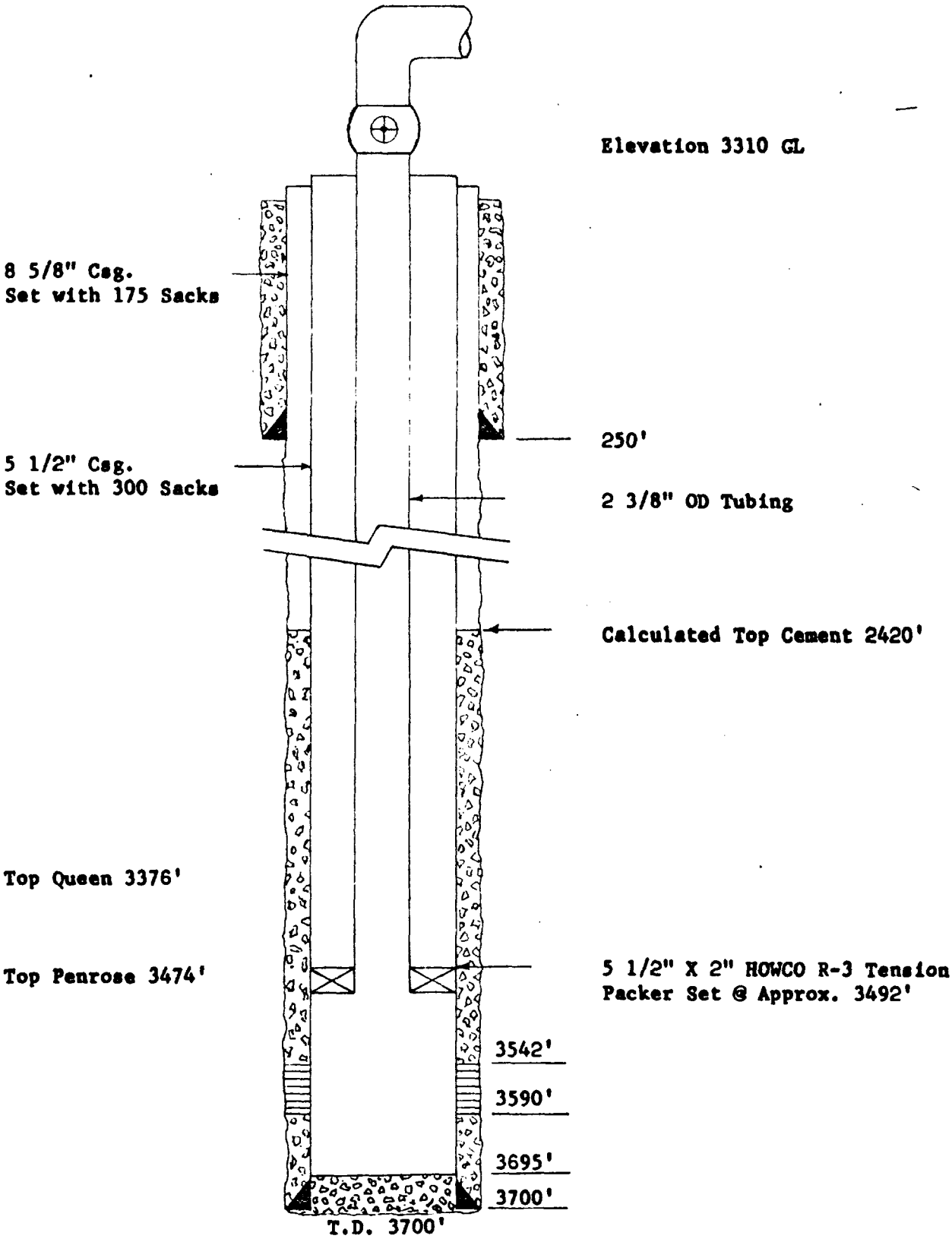
3750'

T.D. 3750'

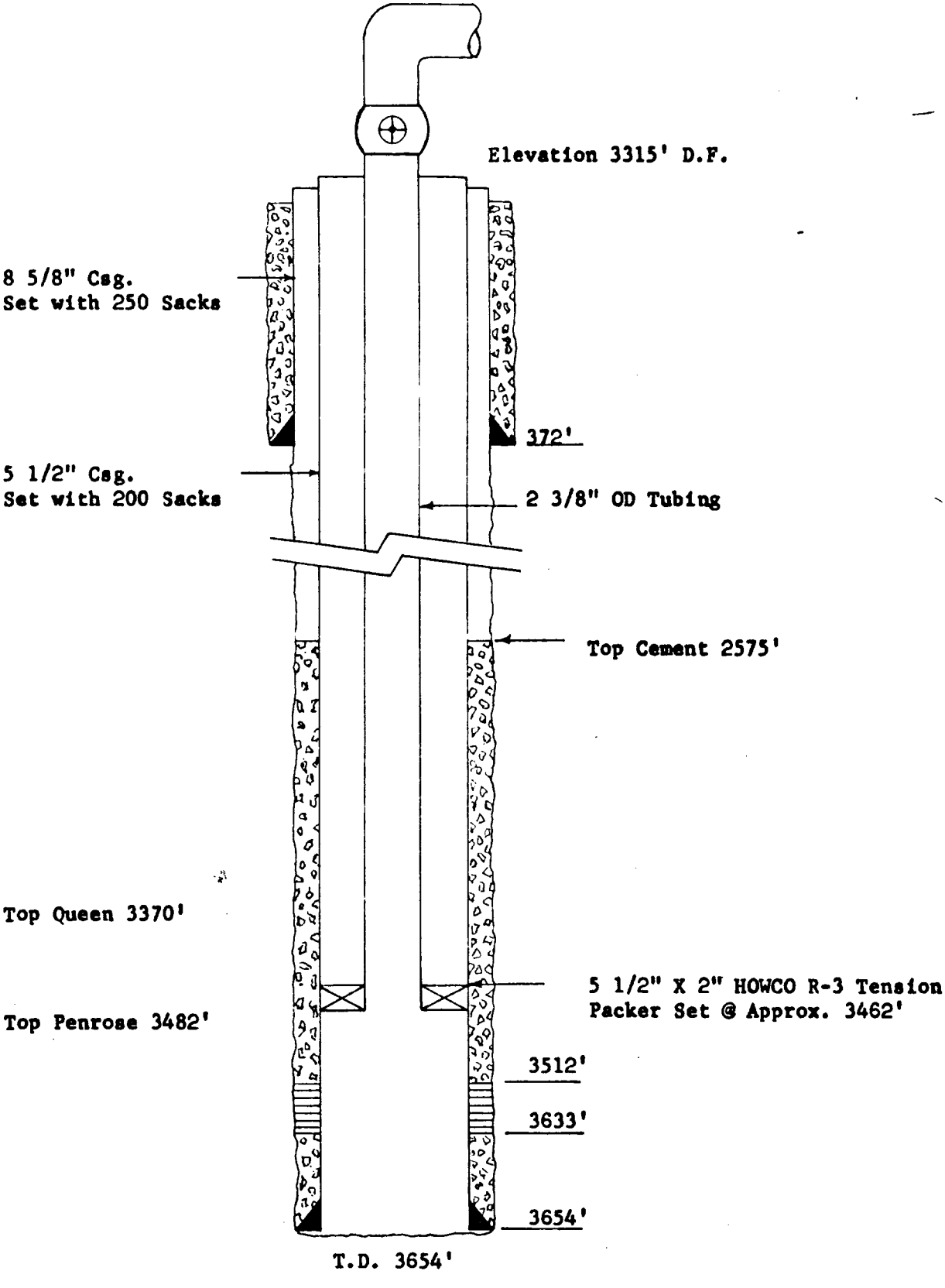
Sun Oil Company
A. D. Richards No. 4
660' FNL & 1980' FEL Section 7, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 47



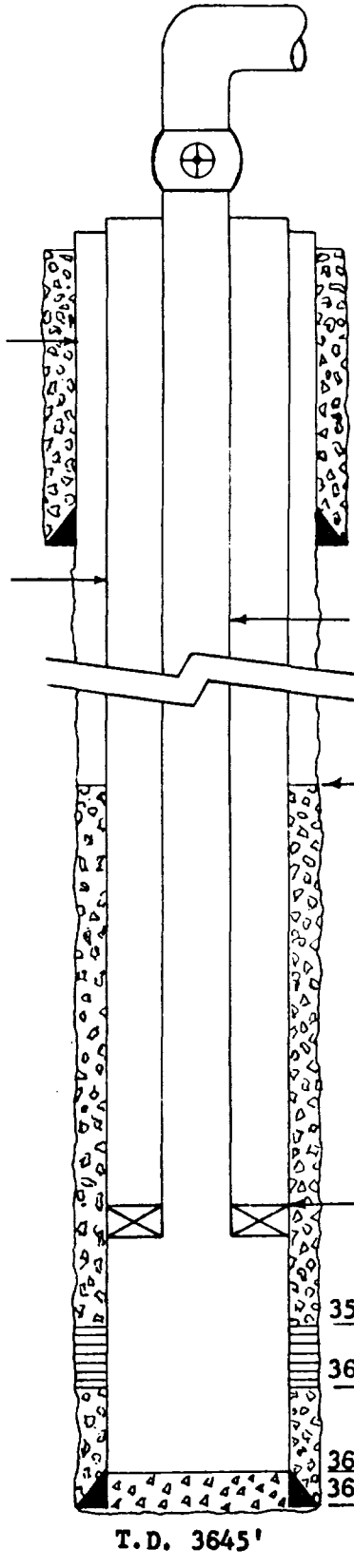
W. K. Byrom
Flora Davis No. 1
990' FEL & 1650' FNL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 50



Skelly Oil Company
Harrison "B" No. 5
1980' FNL & 1980' FWL Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 52



Skelly Oil Company
Harrison "B" No. 9
1980' FSL & 660' FWL Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 54



Elevation 3324' D.F.

8 5/8" Csg.
Set with 225 Sacks

371'

5 1/2" Csg.
Set with 200 Sacks

2 3/8" OD Tubing

Top Cement 2770'

Top Queen 3373'

Top Penrose 3474'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3573'

3523'

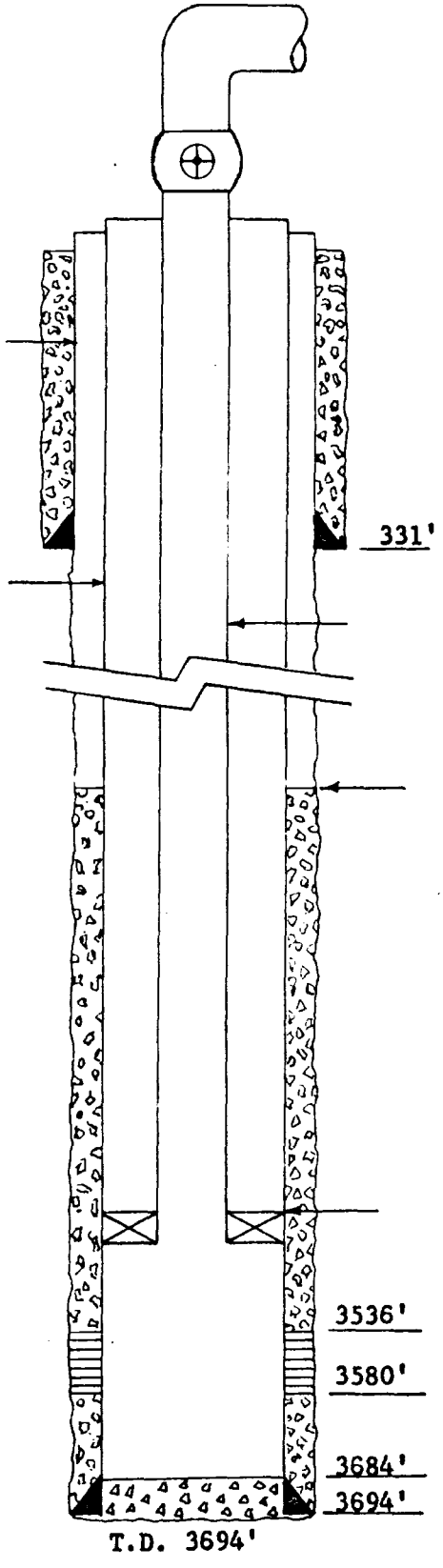
3636'

3644'

3645'

T.D. 3645'

Texas Pacific Oil Company
Clift No. 5
660' FWL & 1980' FSL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 56



Elevation 3341 D.F.

9 5/8" Csg.
Set with 300 Sacks

331'

7" Csg.
Set with 300 Sacks

2 3/8" OD Tubing

Top Cement 1782'

Top Queen 3408'

7" x 2" HOWCO R-3 Tension
Packer Set @ Approx. 3486'

Top Penrose 3514'

3536'

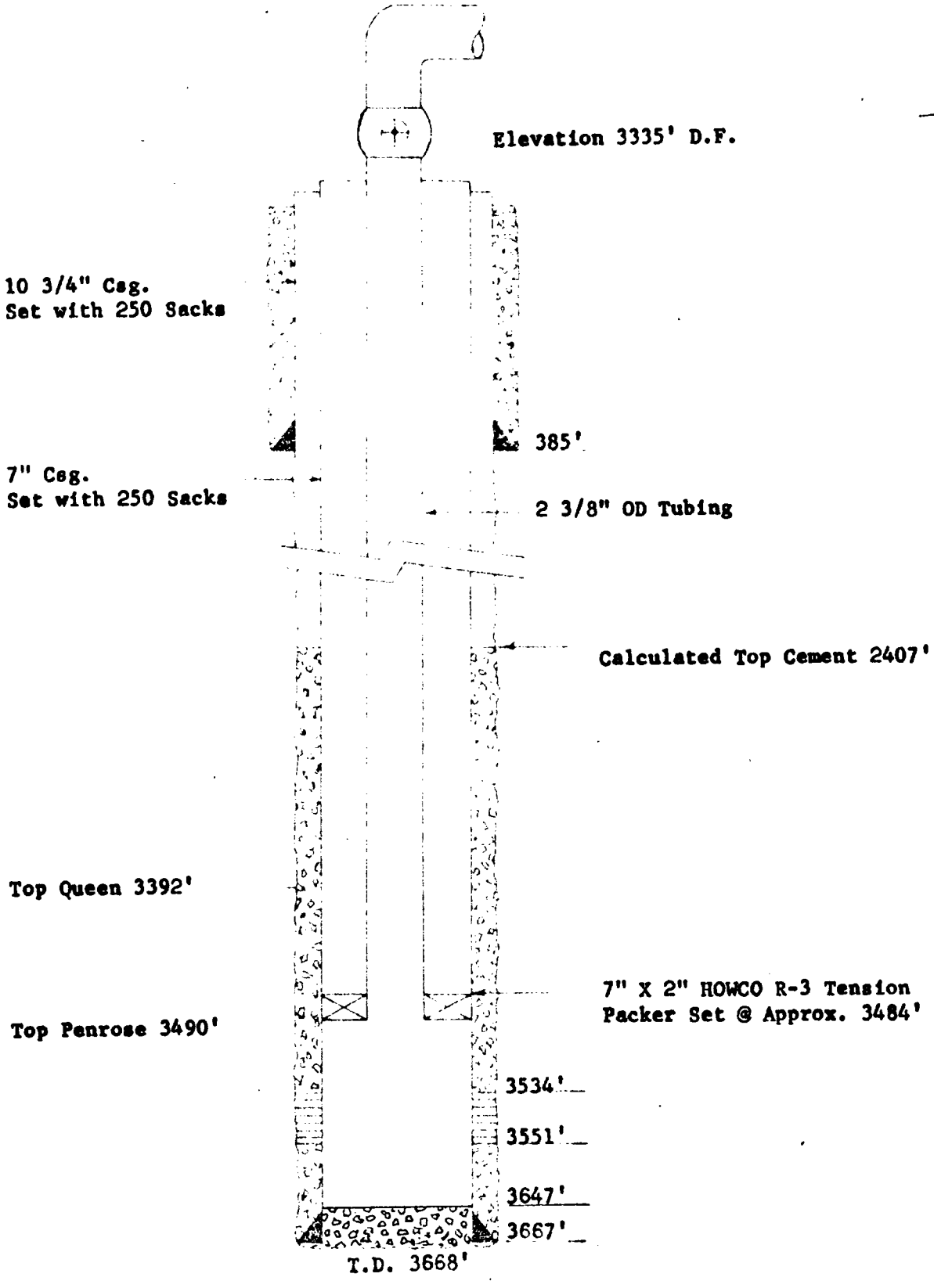
3580'

3684'

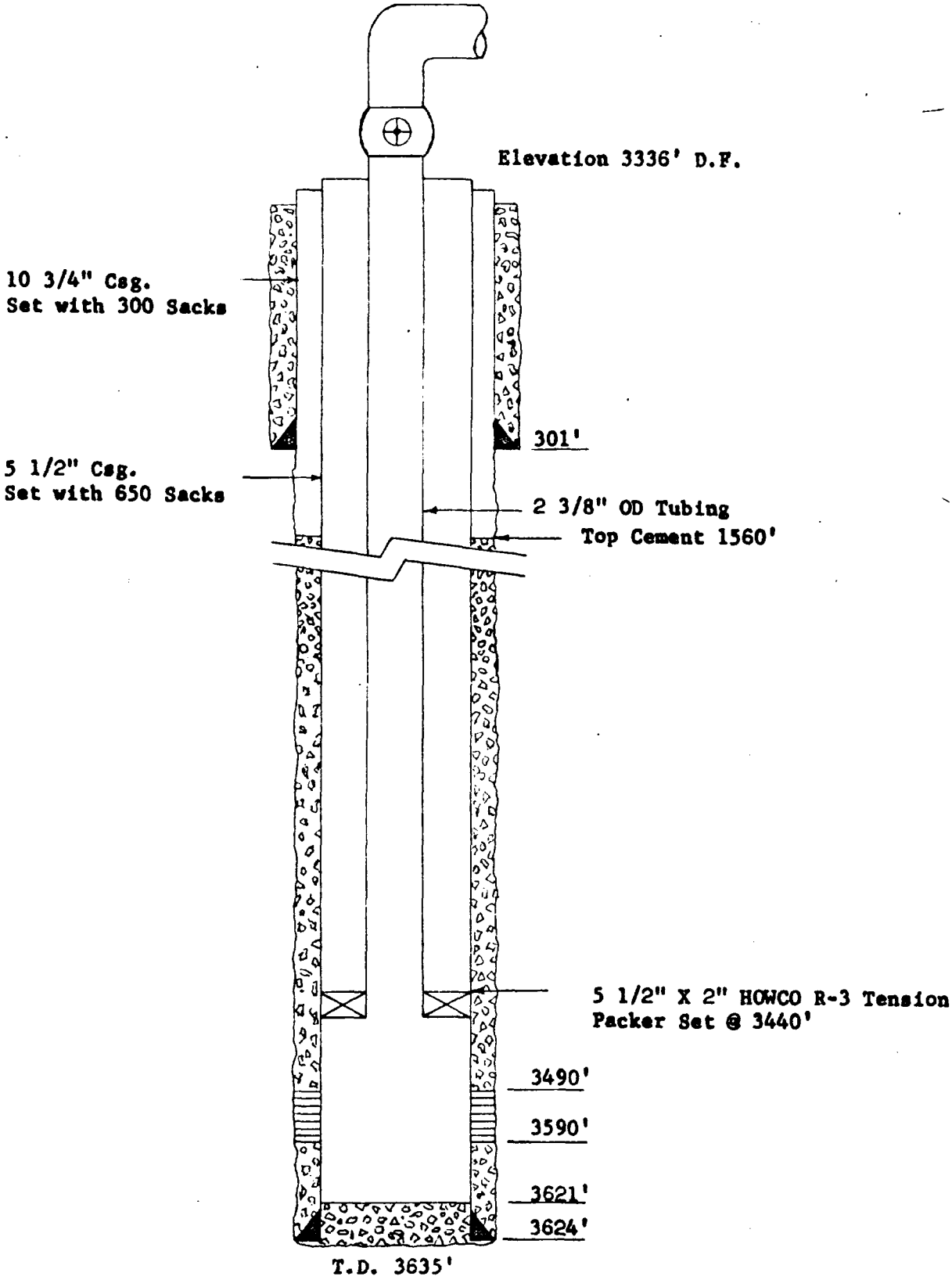
3694'

T.D. 3694'

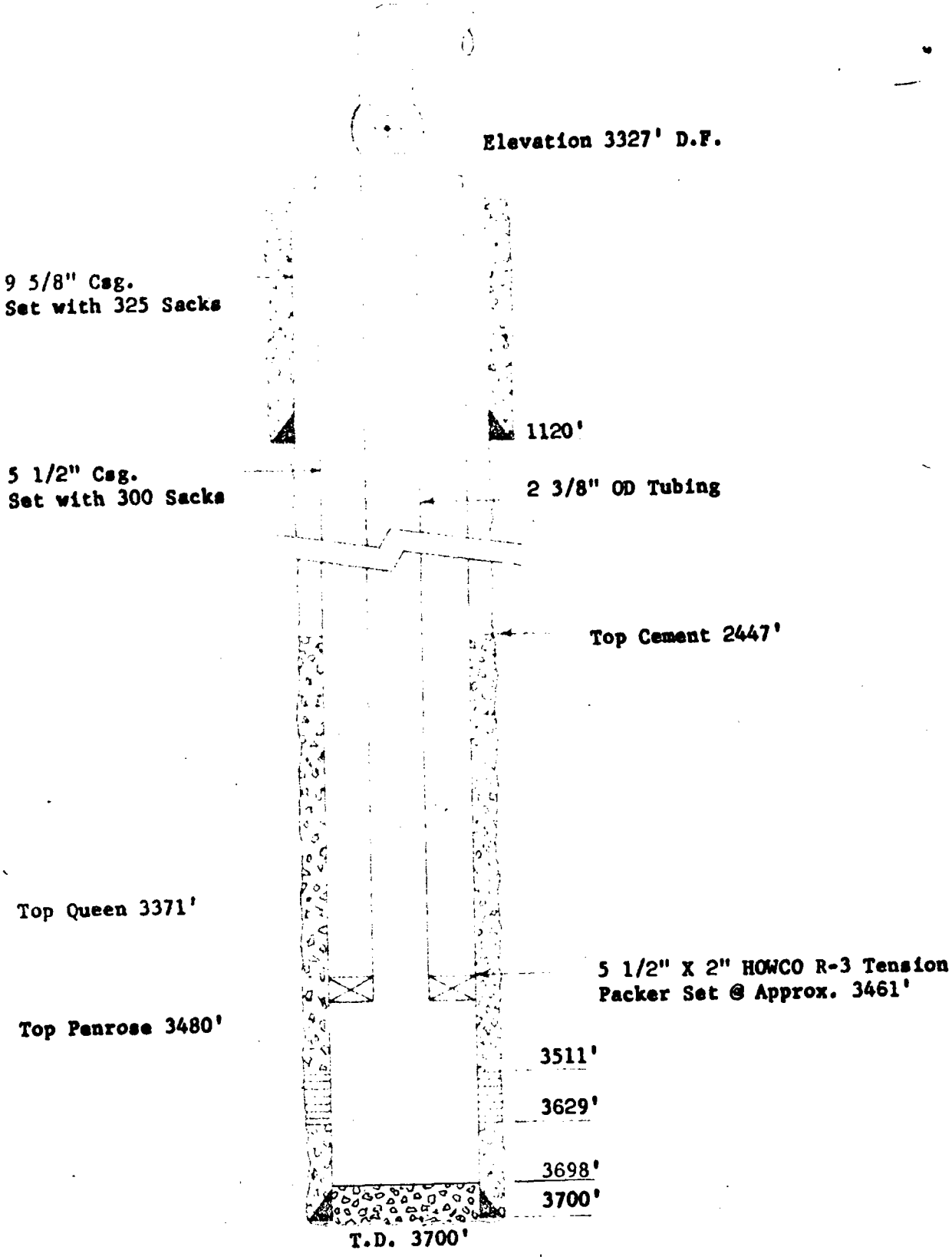
Texas Pacific Oil Co.
Clift No. 3
1980' FWL & 660' FSL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No.57



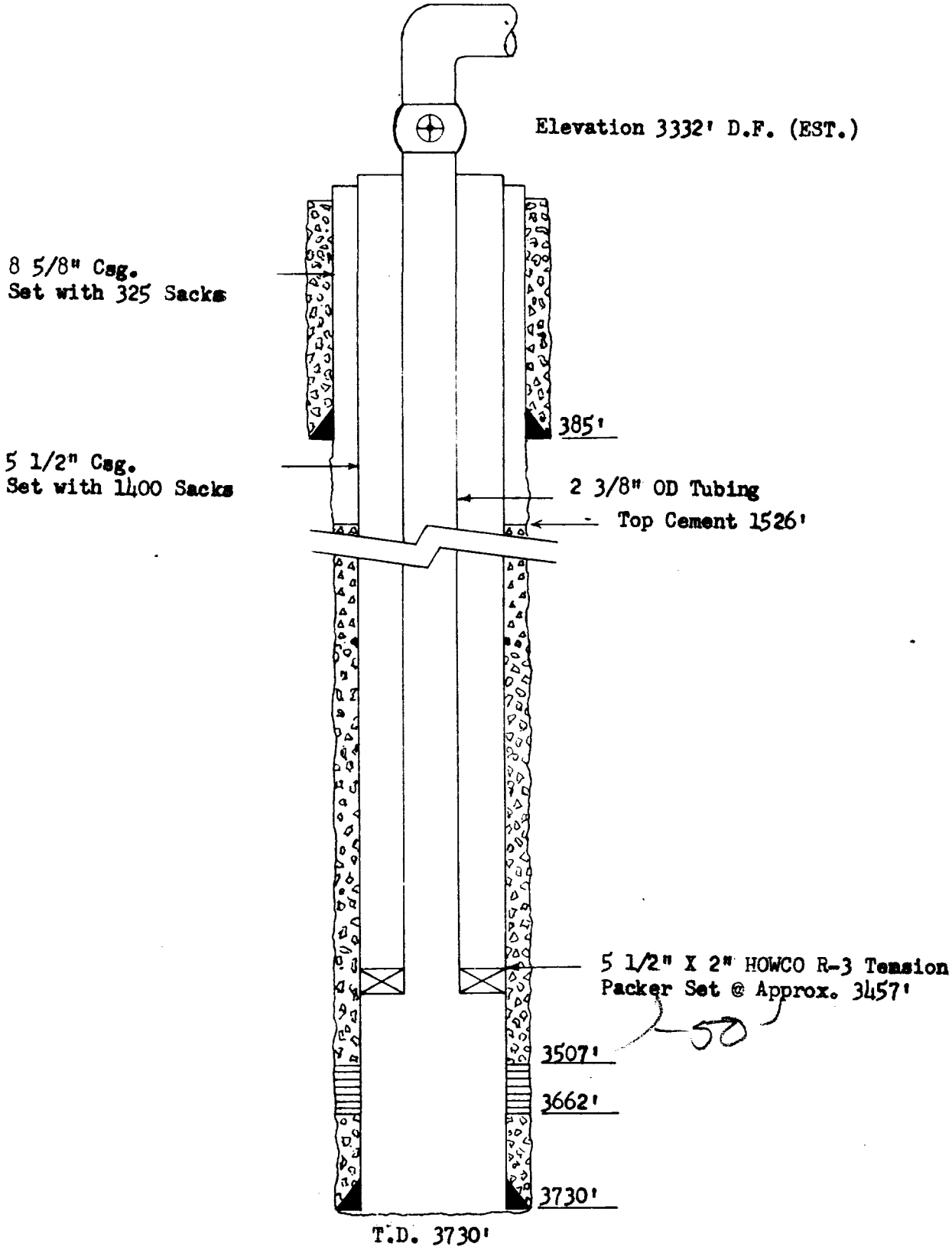
Texas Pacific Oil Company
Clift No. 4
330' FSL & 330' FEL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 59



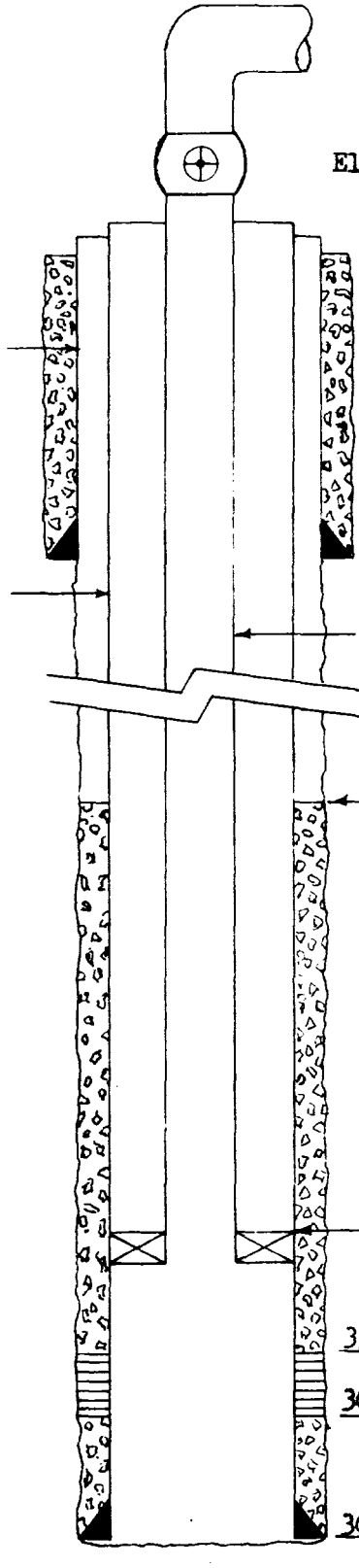
Skally Oil Company
Harrison "B" No. 11
660' FSL & 1980' FWL Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 61



Gulf Oil Corporation
Black Davis No. 2
660' FNL & 1980' FEL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. (To Be Numbered)



Skelly Oil Company
Skelly Penrose "B" Unit Well No. (To Be Drilled)
1980' FSL & 1980' FEL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well



Elevation 3325' D.F. (EST.)

8 5/8" Csg. Set
with Approx. 250 Sacks

360' Approx.

4 1/2" Csg. Set
with Approx. 300 Sacks

2 3/8" OD Tubing

EST. Top Cement 2467'

4 1/2" X 2" HOWCO R-3 Tension
Packer Set @ Approx. 3470'

EST. Top Penrose 3475'

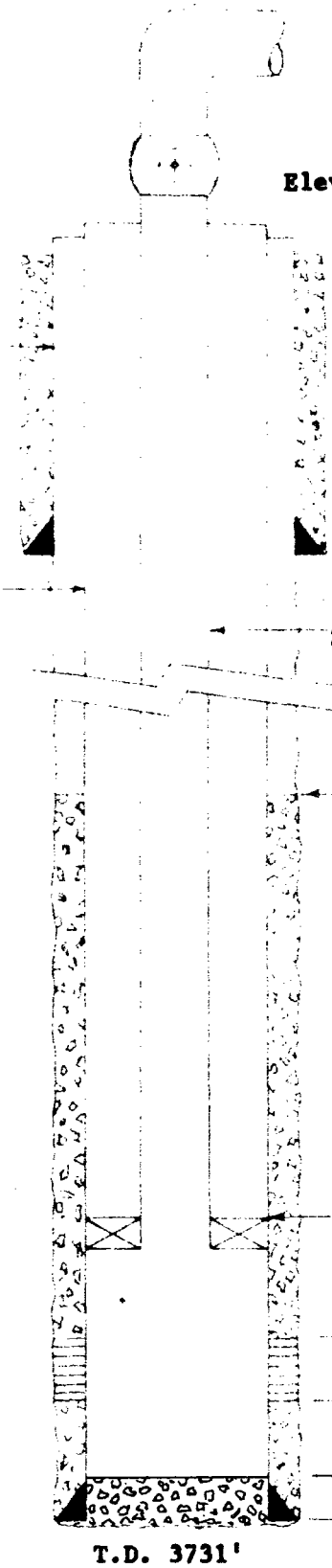
3520' EST.

3625' EST.

3685' EST.

T.D. 3685' EST.

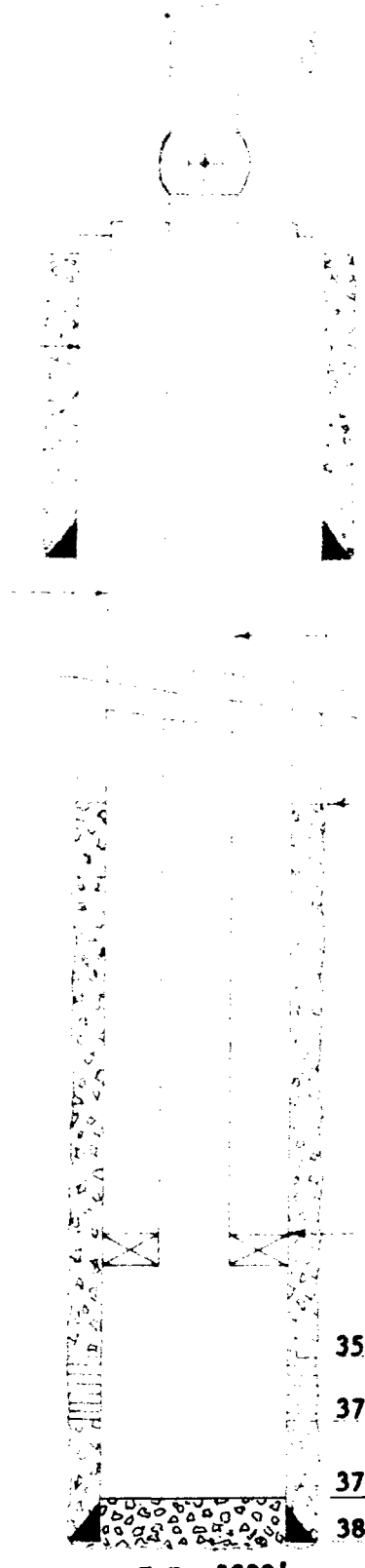
Operators Service Co.
Cole - State No. 1
990' FNL & 1650' FEL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 1



SKELLY OIL CO.

EXHIBIT NO. B

Compass Exploration, Inc.
State No. 4 - 32
660' FNL & 990' FWL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 3



Elevation 3373' D.F.

8 5/8" Csg.
Set with 175 Sacks

310'

5 1/2" Csg.
Set with 250 Sacks

2 3/8" OD Tbg.

Calculated Top Cement 2705'

Top Queen 3476'

5 1/2" X 2" HOWCO R-3 Tension
Packer Set @ Approx. 3544'

L 50'

Top Penrose 3594'

3594'

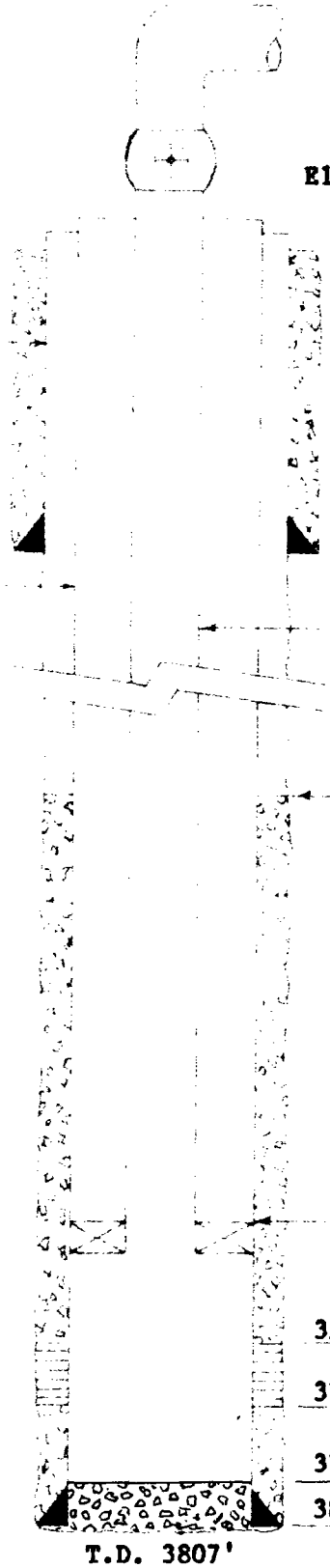
3709'

3768'

3800'

T.D. 3800'

Compass Exploration, Inc.
State No. 1 - 32
1980' FNL & 2310' FWL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 5



Elevation 3364' D.F.

8 5/8" Csg.
Set with 200 Sacks

320'

5 1/2" Csg.
Set with 250 Sacks

2 3/8" OD Tubing

Calculated Top Cement 2712'

Top Queen 3477'

5 1/2" X 2" HOWCO R-3 Tension
Packer Set @ Approx. 3538'

L 50

Top Penrose 3588'

3588'

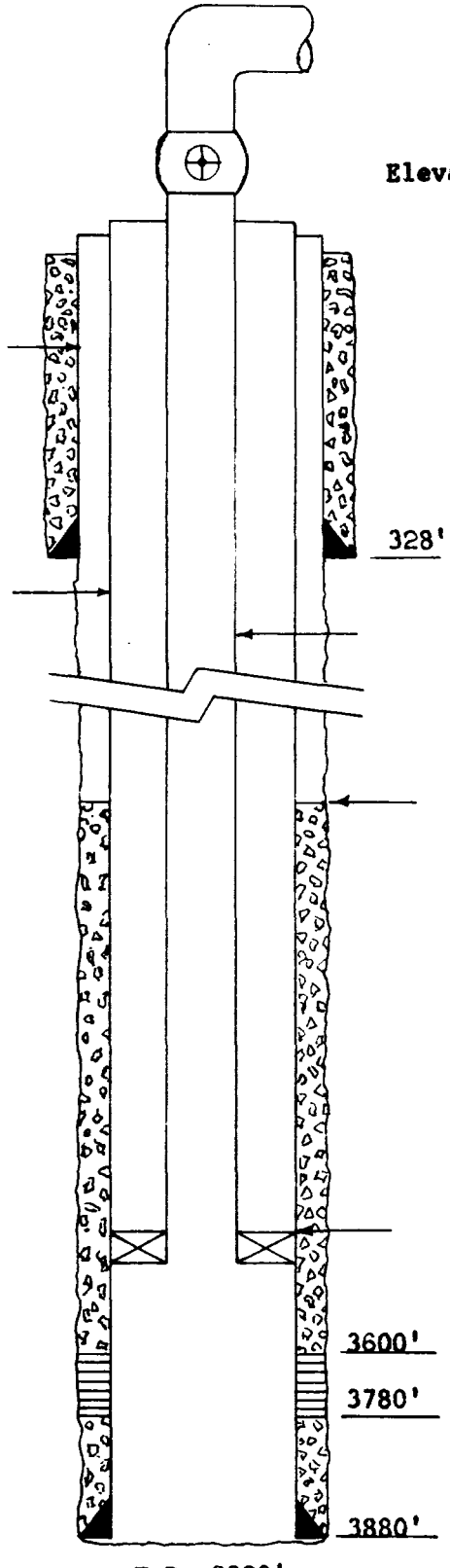
3726'

3775'

3807'

T.D. 3807'

Oscar Bourg Drilling Company
King No. 3
1980' FSL & 1980' FEL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 8



Elevation 3377' D.F.

8 5/8" Csg.
Set with 220 Sacks

328'

5 1/2" Csg.
Set with 250 Sacks

2 3/8" OD Tubing

Calculated Top Cement 2785'

Top Queen 3496'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3550'

- 50

3600'

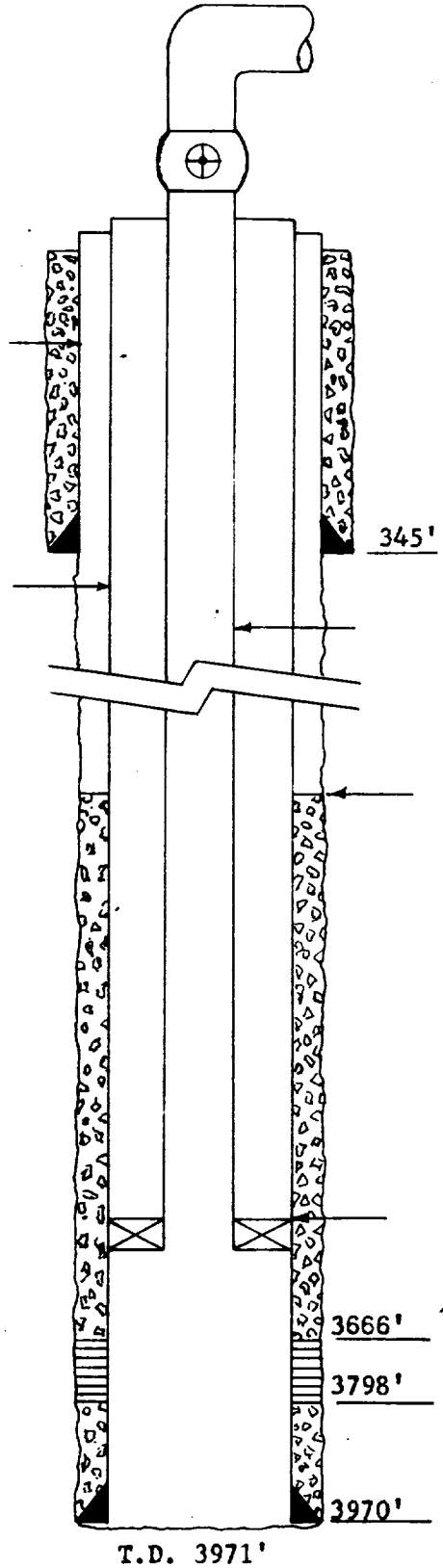
Top Penrose 3607'

3780'

3880'

T.D. 3880'

Oscar Bourg Drilling Company
State No. 3
1980' FSL & 990' FWL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 10



Elevation 3577' D.F.

8 5/8" Csg.
Set with 250 Sacks

345'

5 1/2" Csg.
Set with 250 Sacks

2 3/8" OD Tubing

Calculated Top Cement 2875'

5 1/2" x 2" HOWCO R-3 Tension
Packer Set @ Approx. 3616'

Top Queen 3546'

Top Penrose 3653'

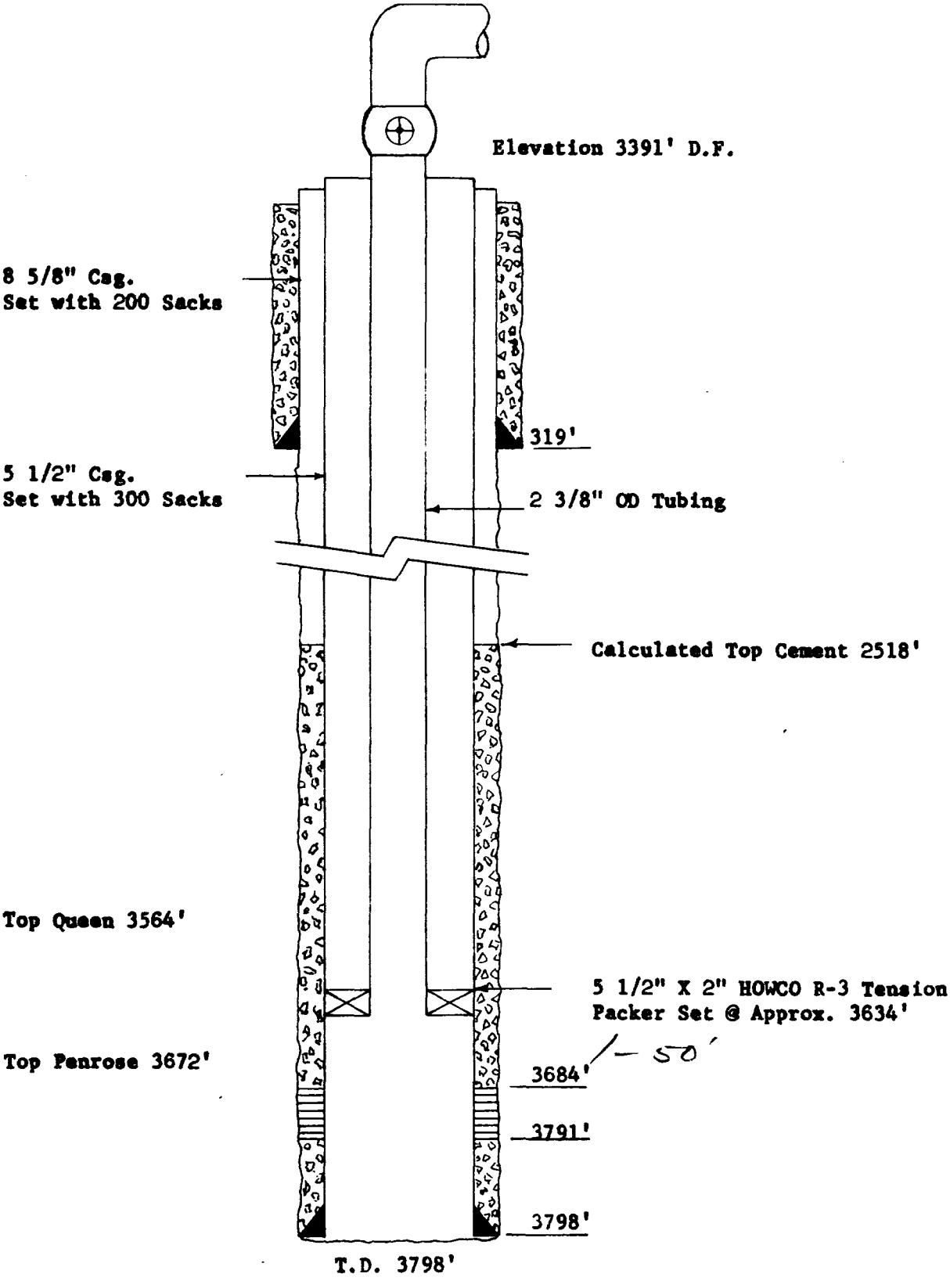
3666'

3798'

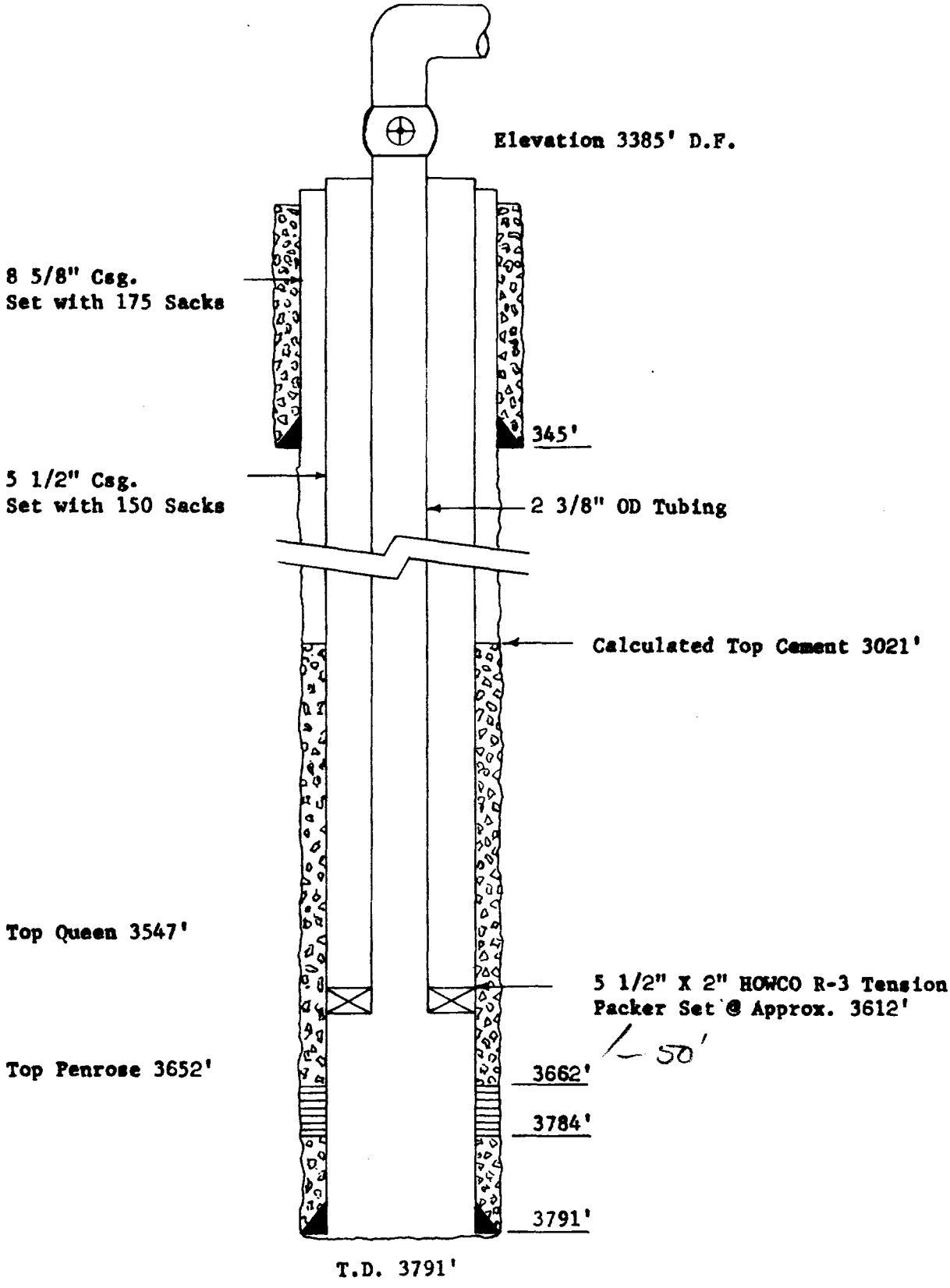
3970'

T.D. 3971'

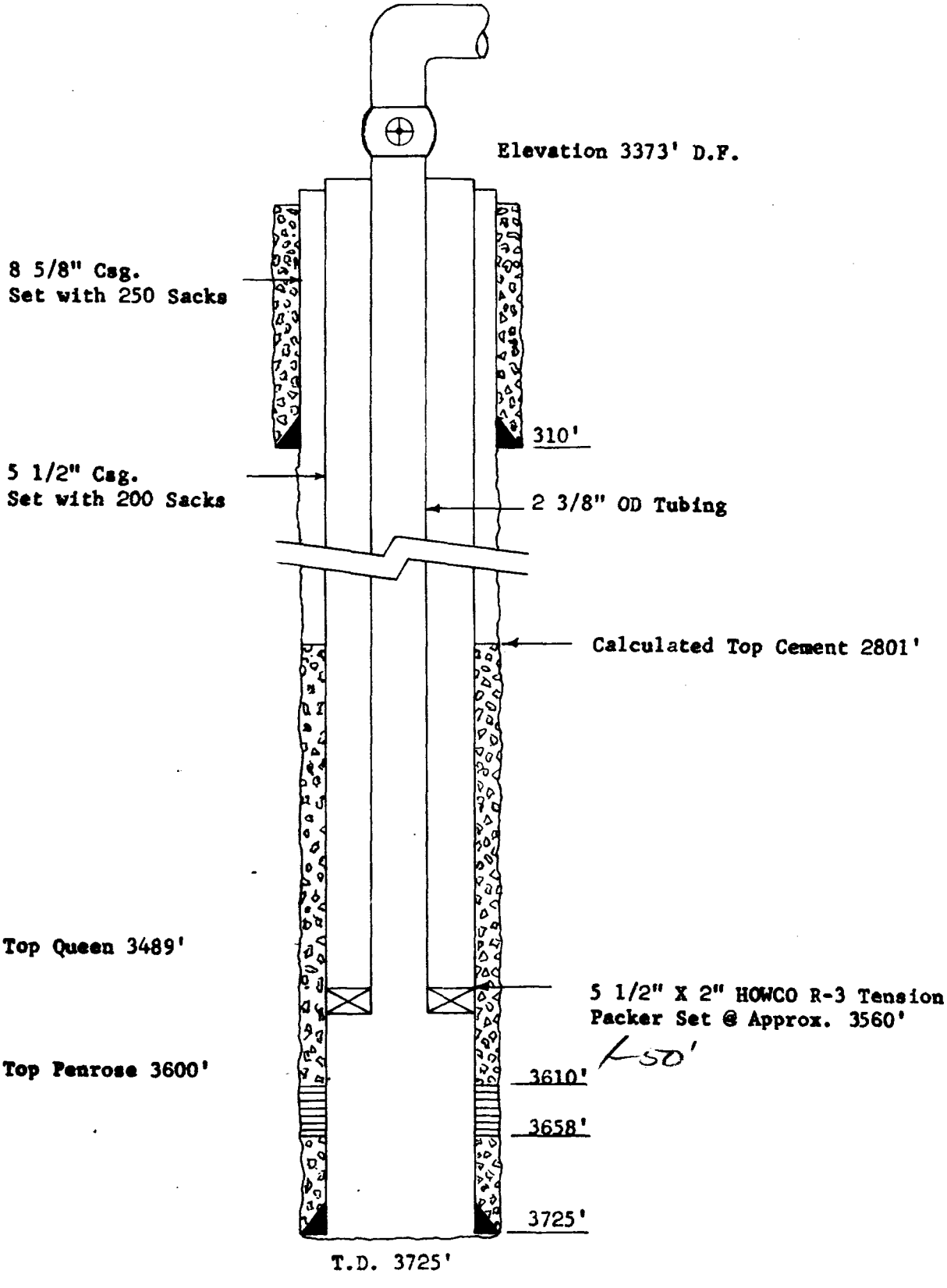
Dalport Oil Corporation
E. F. King "A" No. 1
330' FSL & 330' FEL Section 31, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 12



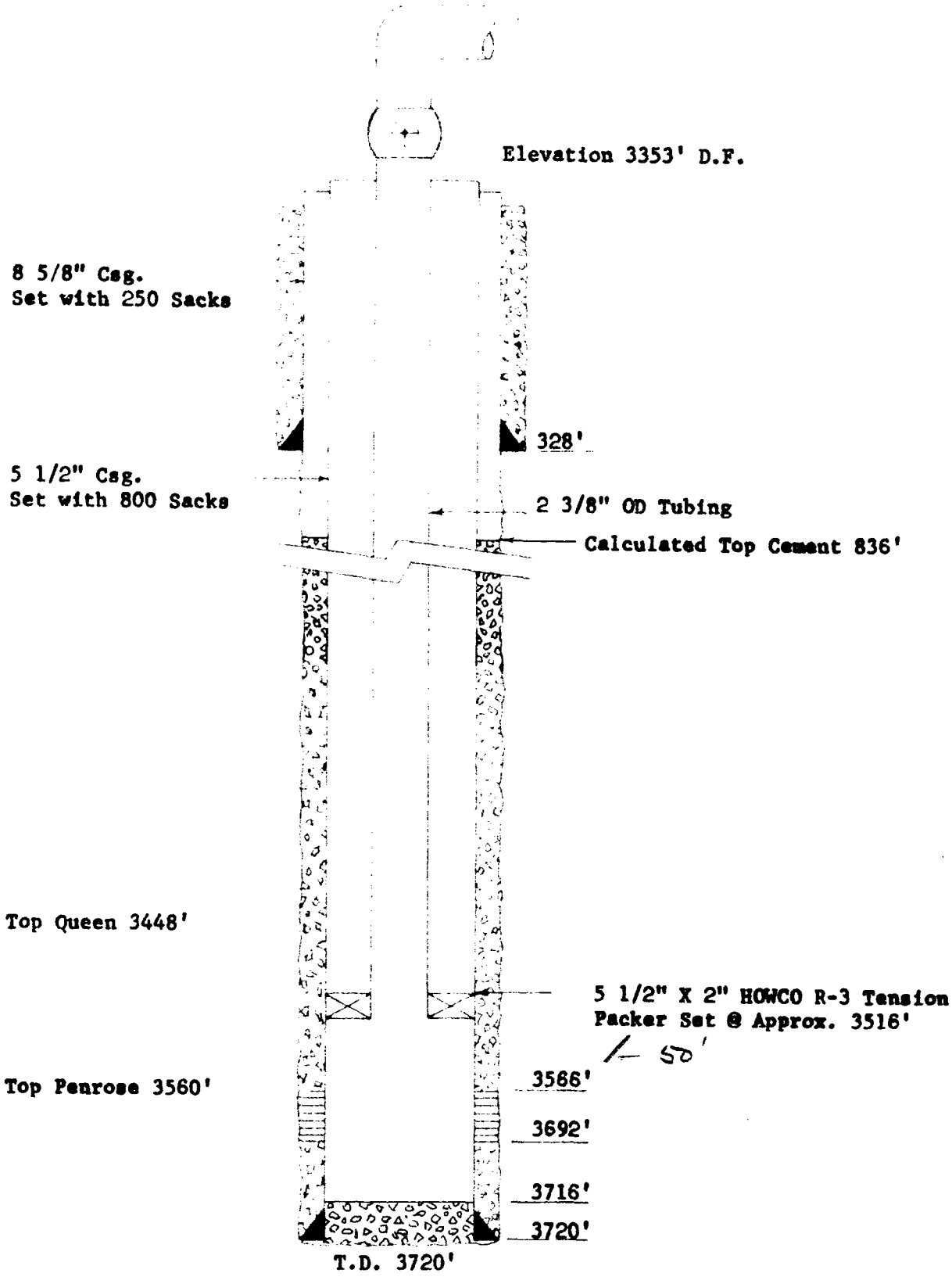
Bourg Drilling Co.
State No. 1
2310' FWL & 990' FSL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 14



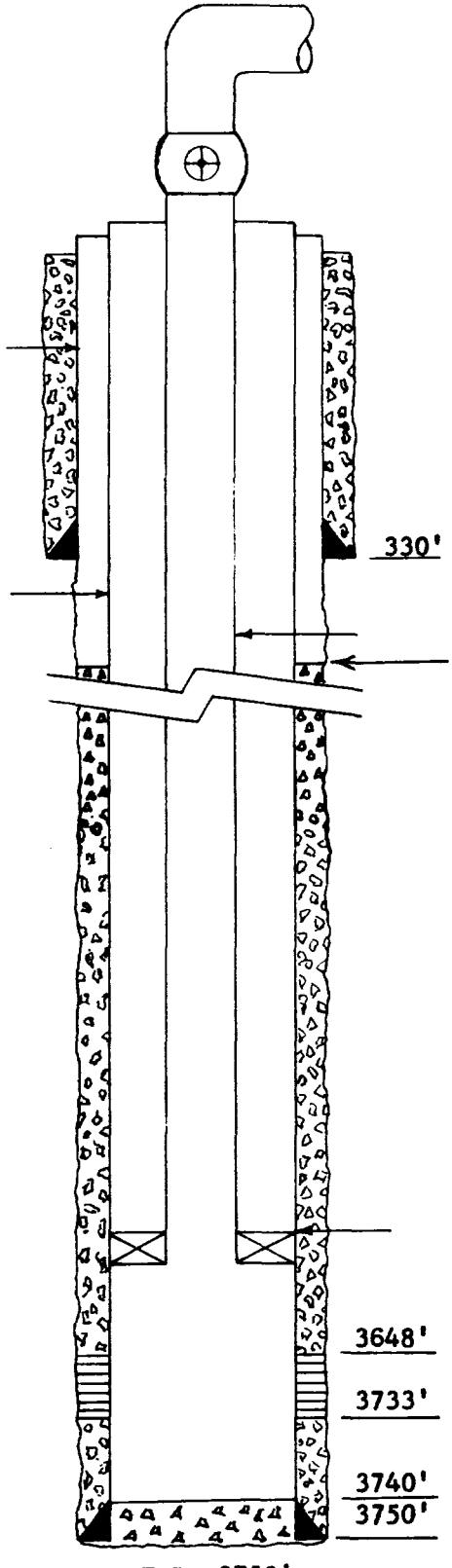
Bourg Drilling Co.
King No. 2
990' FSL & 660' FEL Section 32, T22S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 16



Ralph Lowe
E. F. King No. 4
660' FN & WL Section 4, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 17



Ralph Lowe
E. F. King No. 5
660' FNL & 1980' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 19



Elevation 3365' D.F.

8 5/8" Csg.
Set with 280 Sacks

330'

5 1/2" Csg.
Set with 950 Sacks

2 3/8" OD Tubing

Calculated Top Cement 474'

Top Queen 3538'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3598'

Top Penrose 3644'

3648'

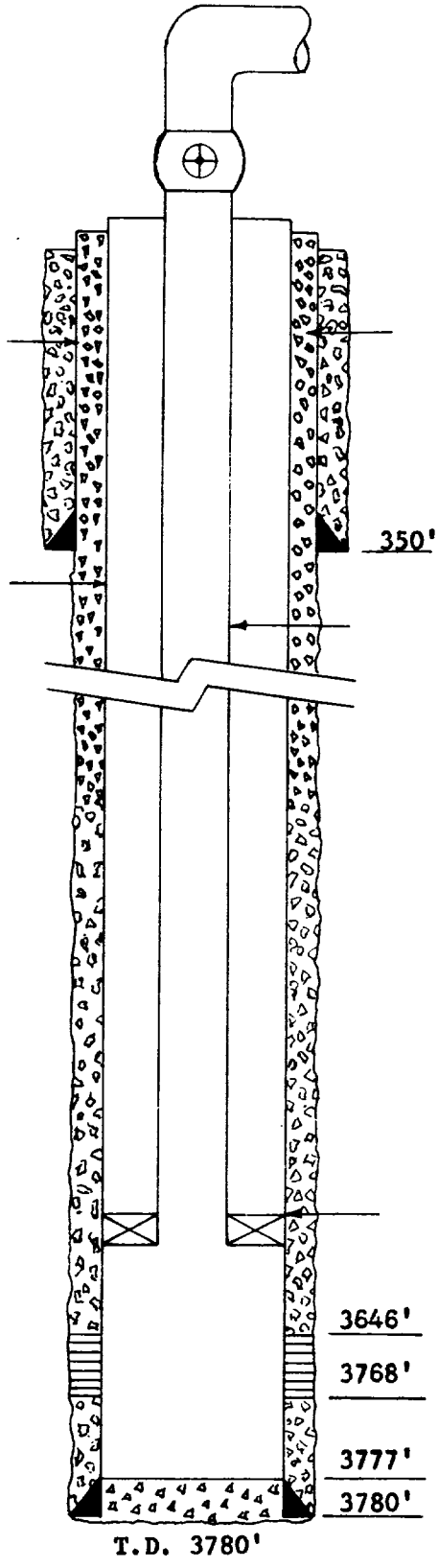
3733'

3740'

3750'

T.D. 3750'

Ralph Lowe
King "B" No. 3
660' FNL & 990' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 21



Elevation 3367 D.F.

8 5/8" Csg.
Set with 200 Sacks

Cement Circulated

350'

5 1/2" Csg.
Set with 1300 Sacks

2 3/8" OD Tubing

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3596'

-50'

Top Queen 3536'

Top Penrose 3640'

3646'

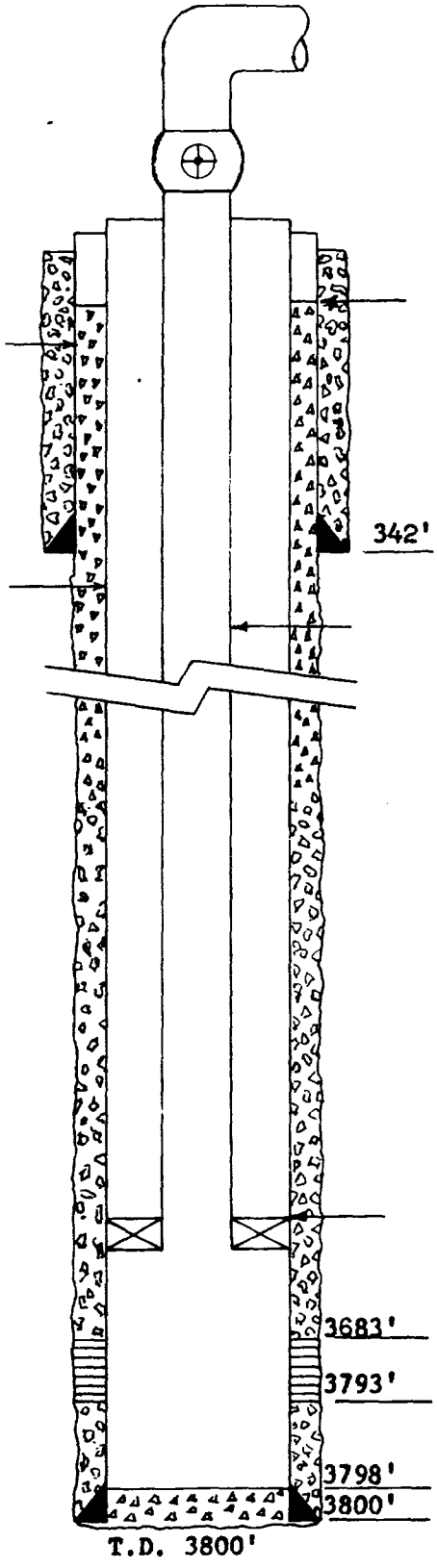
3768'

3777'

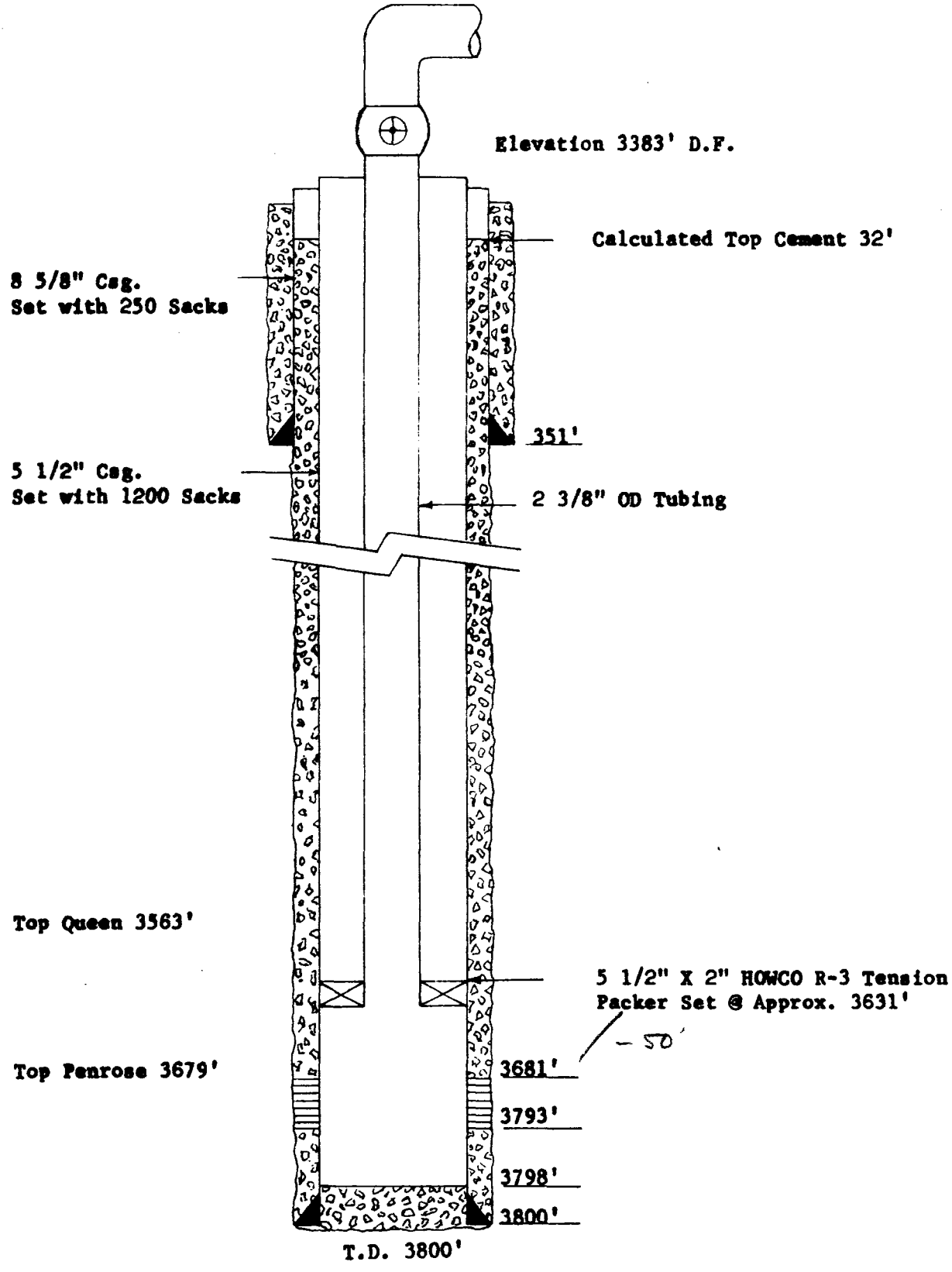
3780'

T.D. 3780'

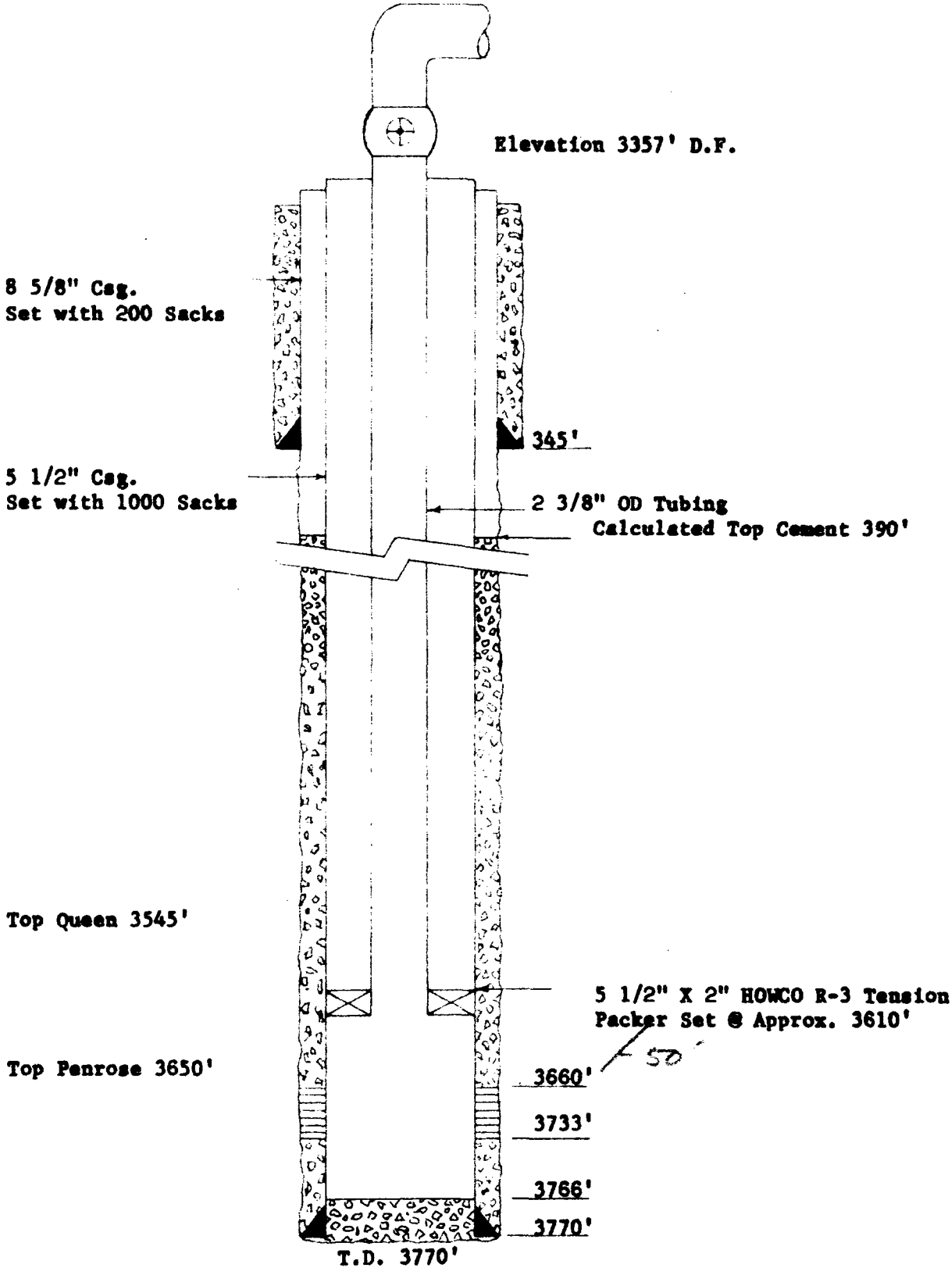
Ralph Lowe
King "B" No. 7
330' FNL & 1650' FEL Section 6, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well - - - - - -
Skelly Penrose "B" Unit Well No. 23



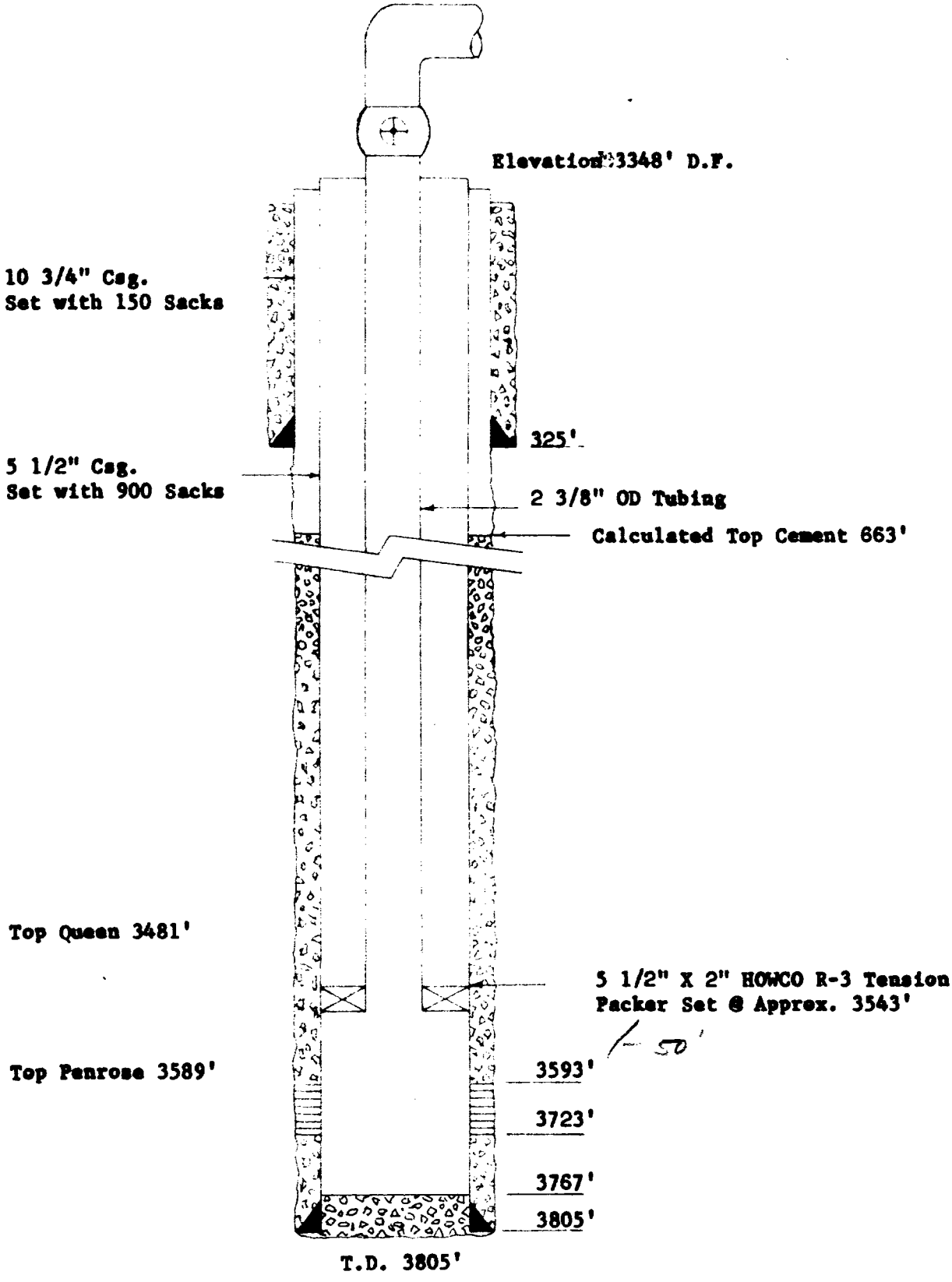
Ralph Lowe
King "B" No. 6
1788' FNL & 330' FEL Section 6, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 25



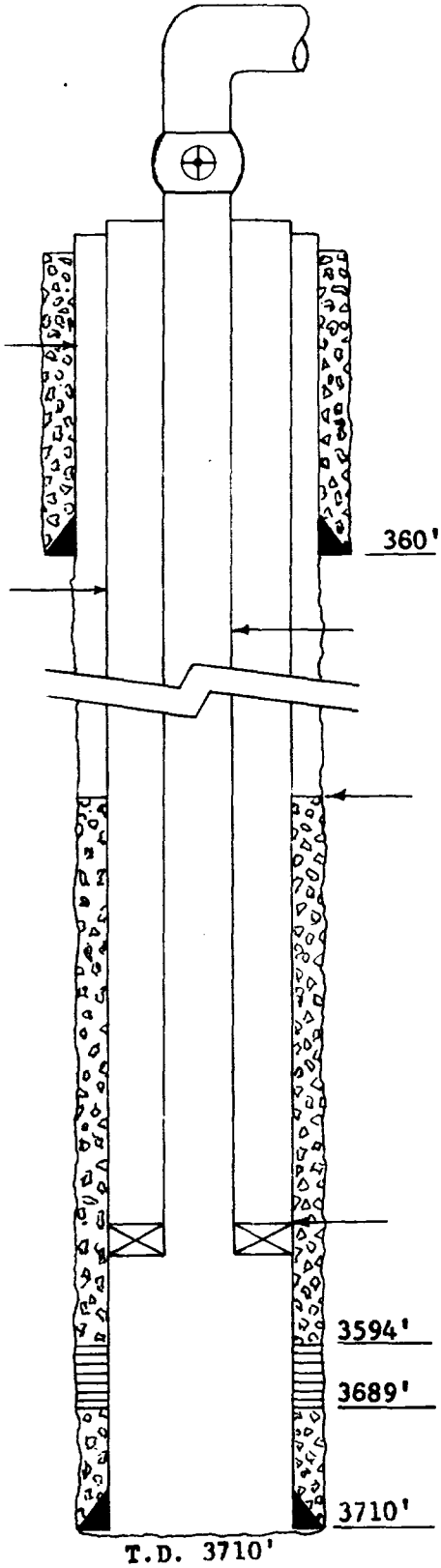
Ralph Lowe
King "B" No. 1
1980' FNL & 1980' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 27



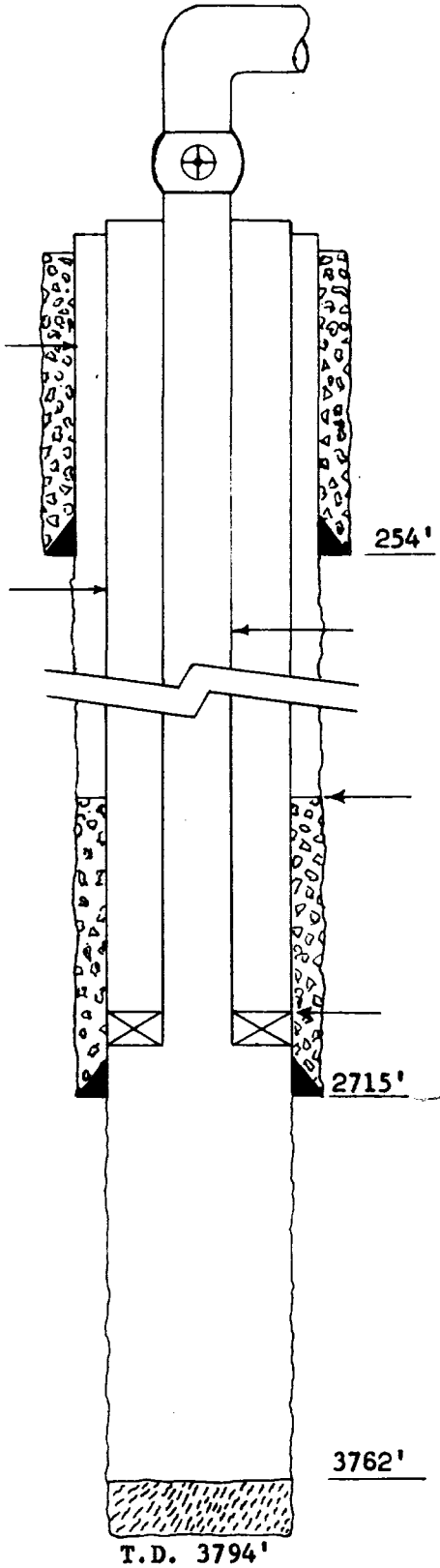
Ralph Lowe
E. F. King No. 2
2112 FNL & 660' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 29



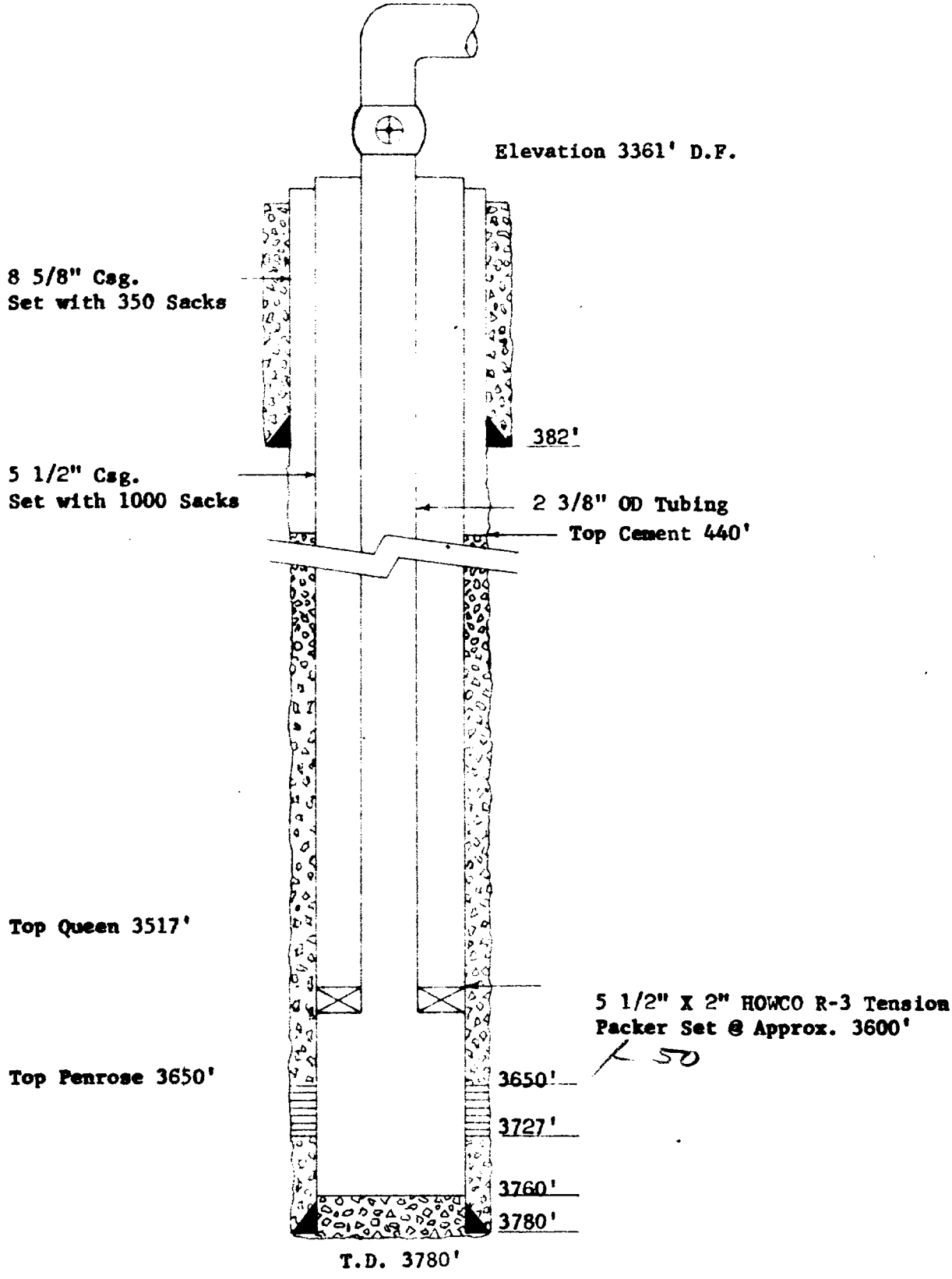
Skelly Oil Company
Harrison "B" No. 4
1980' FSL & 1980' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 32



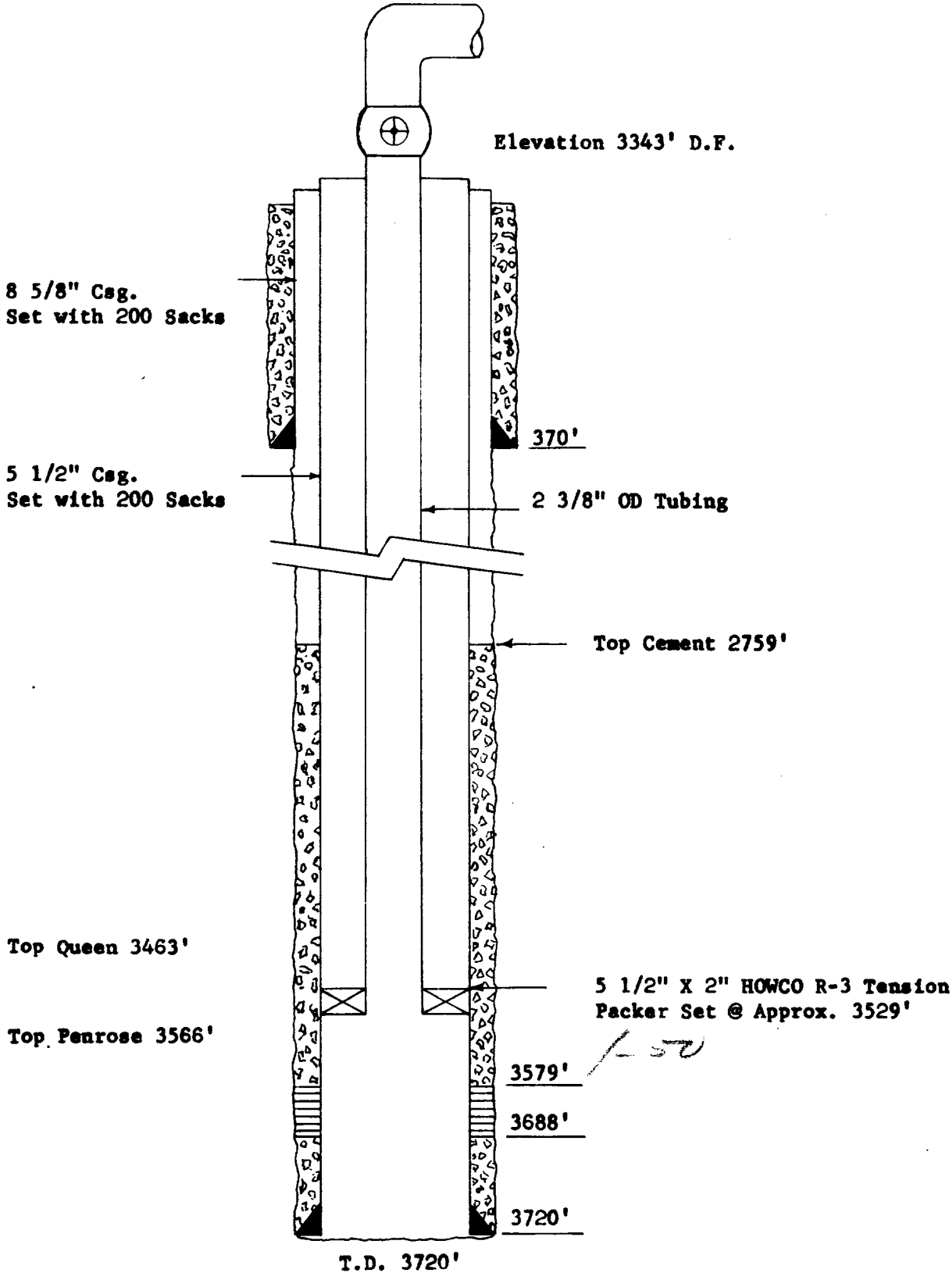
Skelly Oil Company
Harrison "A" No. 1
1980' FSL & 660' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 34



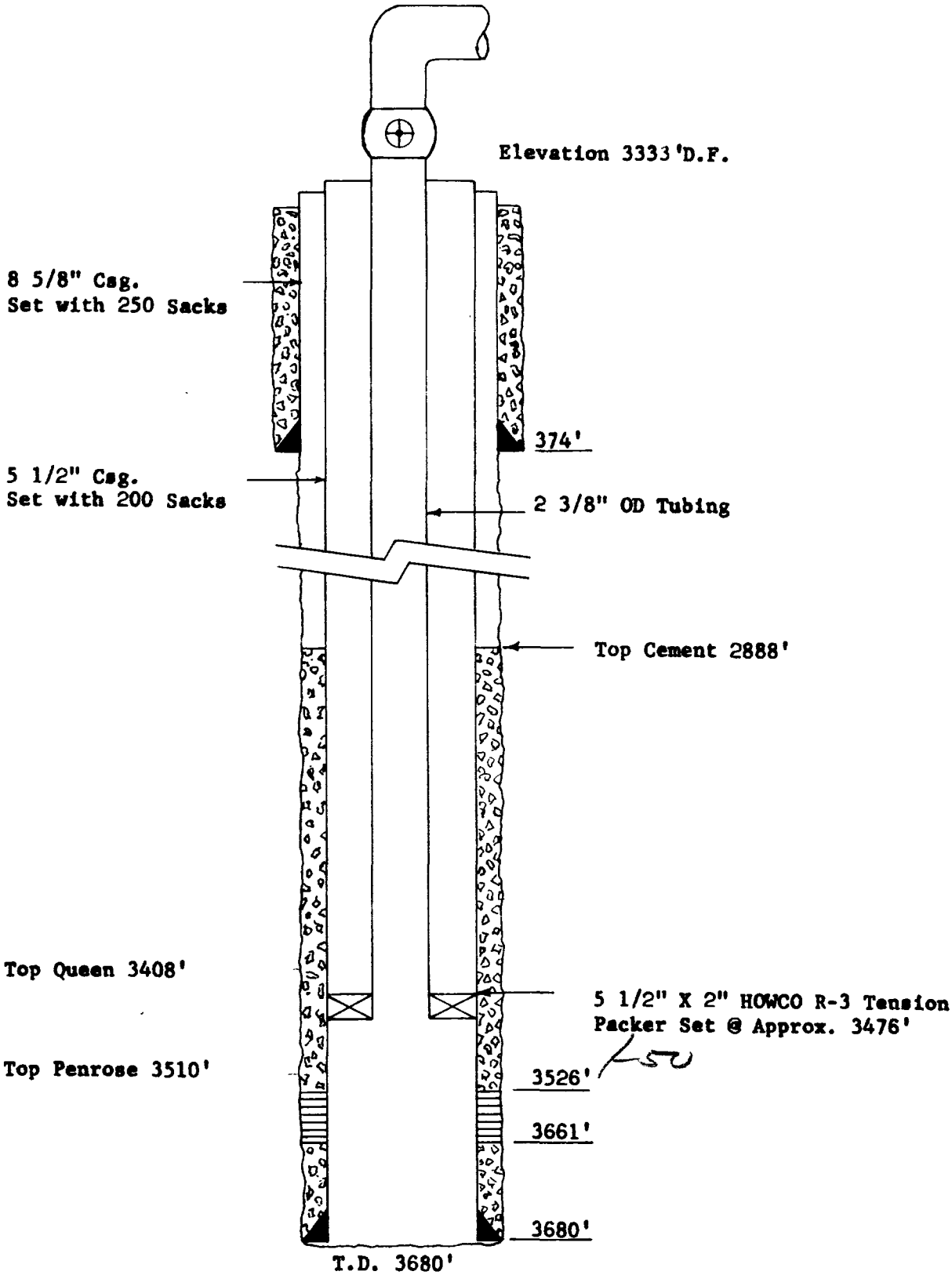
Sun Oil Company
Richards No. 3
660' FSL & 660' FEL Section 6, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 36



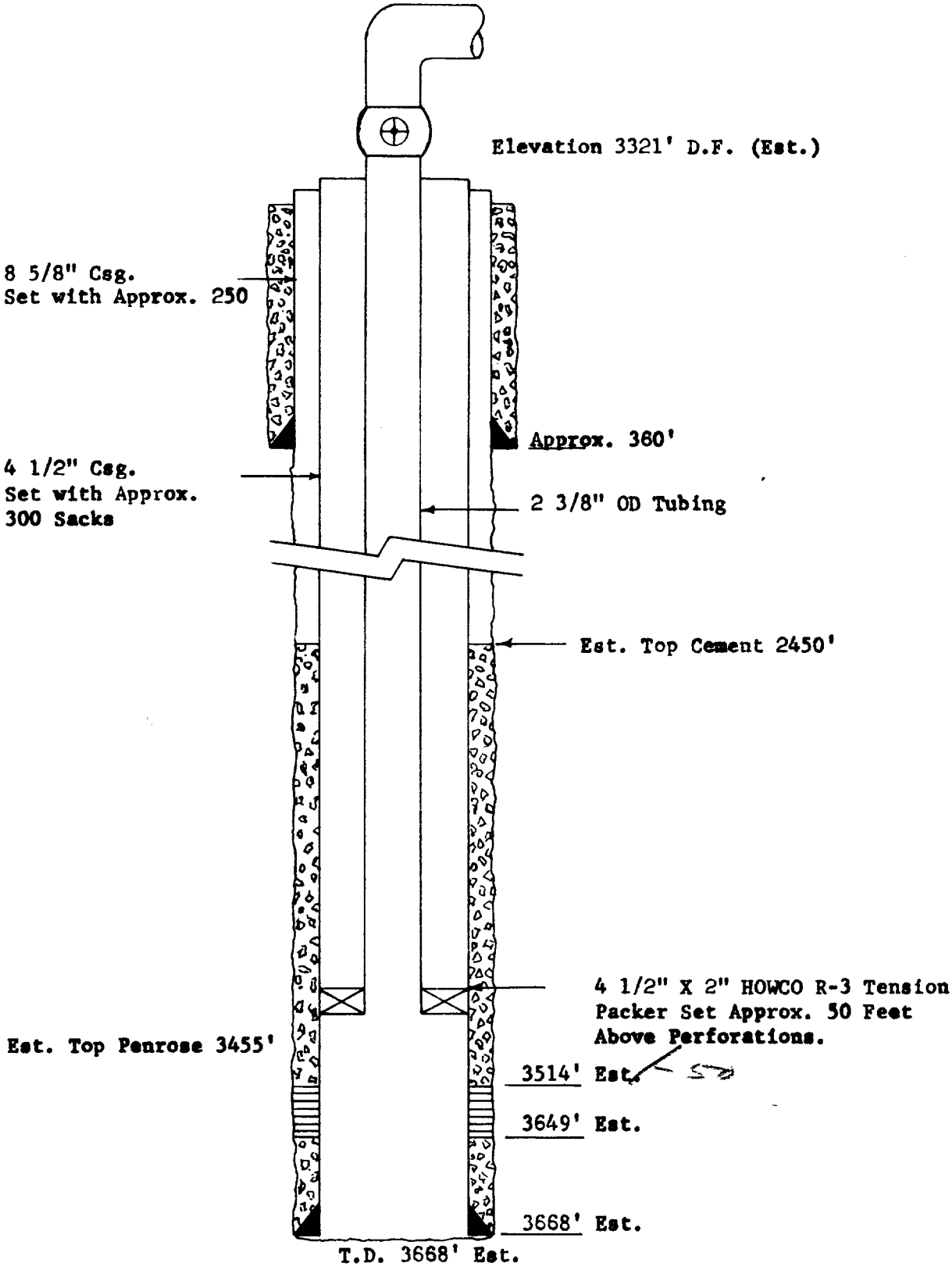
Skelly Oil Company
Harrison "A" No. 3
660' FSL & 1980' FWL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 38



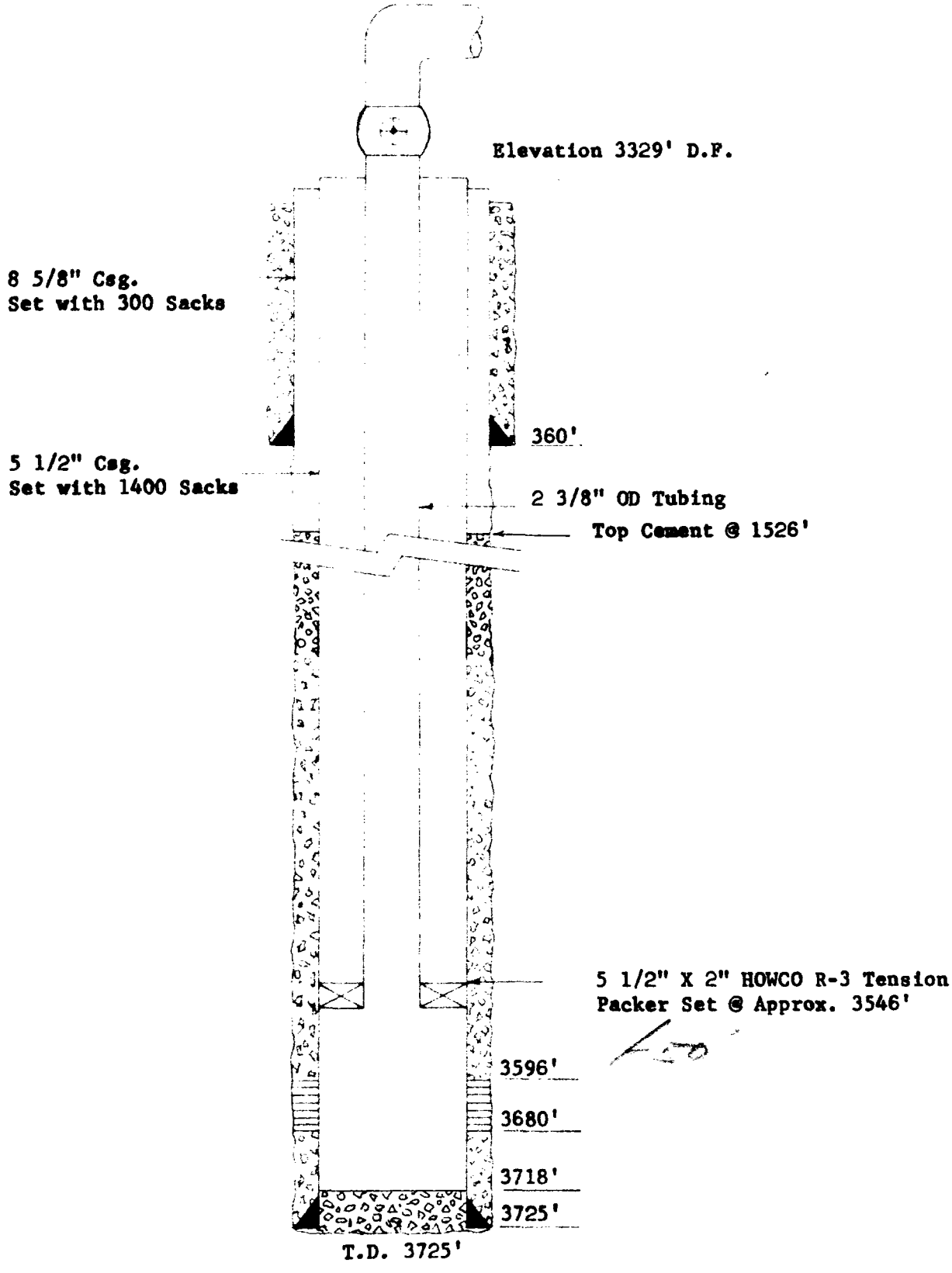
Skelly Oil Company
Harrison "B" No. 6
660' FSL & 660' FEL Section 5, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 40



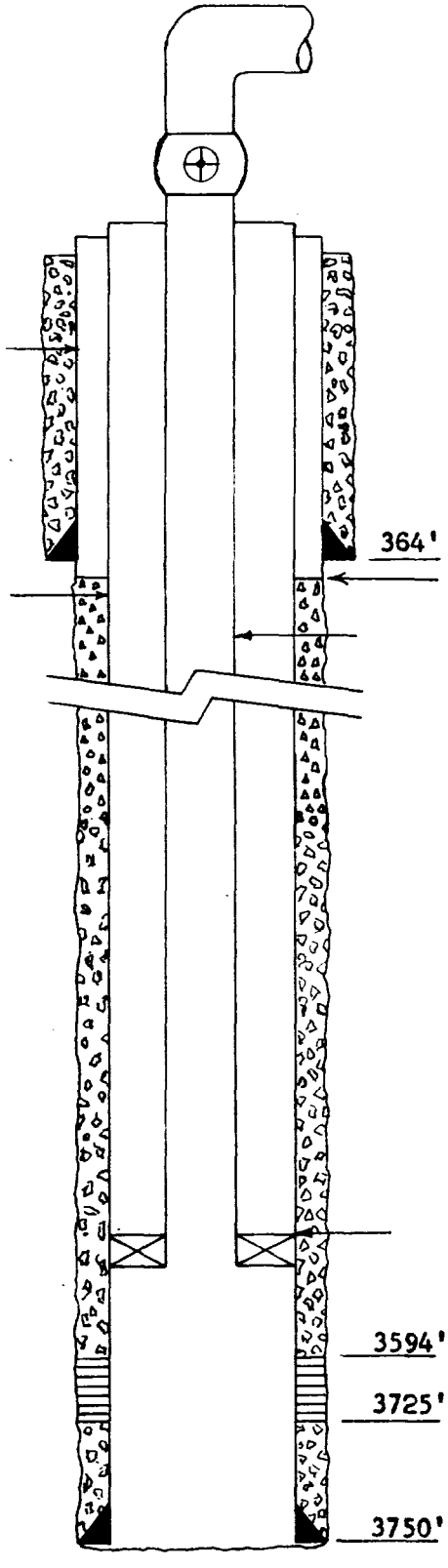
Skelly Oil Company
Skelly Penrose "B" Unit Well No. (To be Numbered)
To Be Drilled In Unit D, Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well



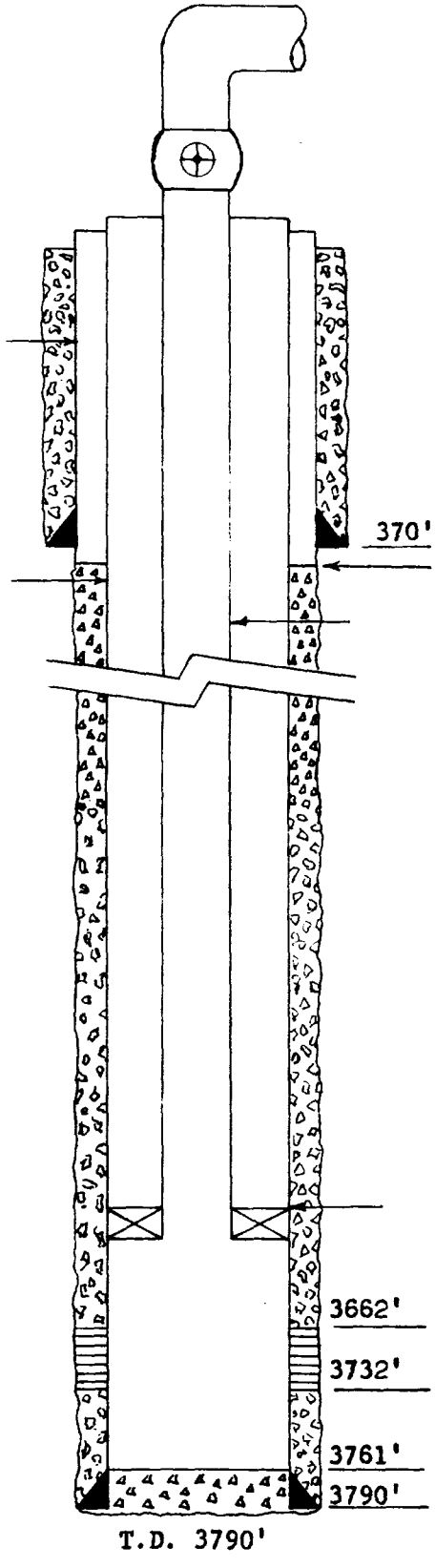
Gulf Oil Corporation
Black Davis No. 1
1980' FNL & 1980' FWL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. (Not Numbered)



Redfern Development Corporation
J. J. Redfern No. 1
660' FNL & 660' FWL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 45



Sun Oil Company
A. D. Richards No. 4
660' FNL & 1980' FEL Section 7, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 47



Elevation 3379' D.F.

8 5/8" Csg.
Set with 250 Sacks

5 1/2" Csg.
Set with 1000 Sacks

Calculated Top Cement 410'

2 3/8" OD Tubing

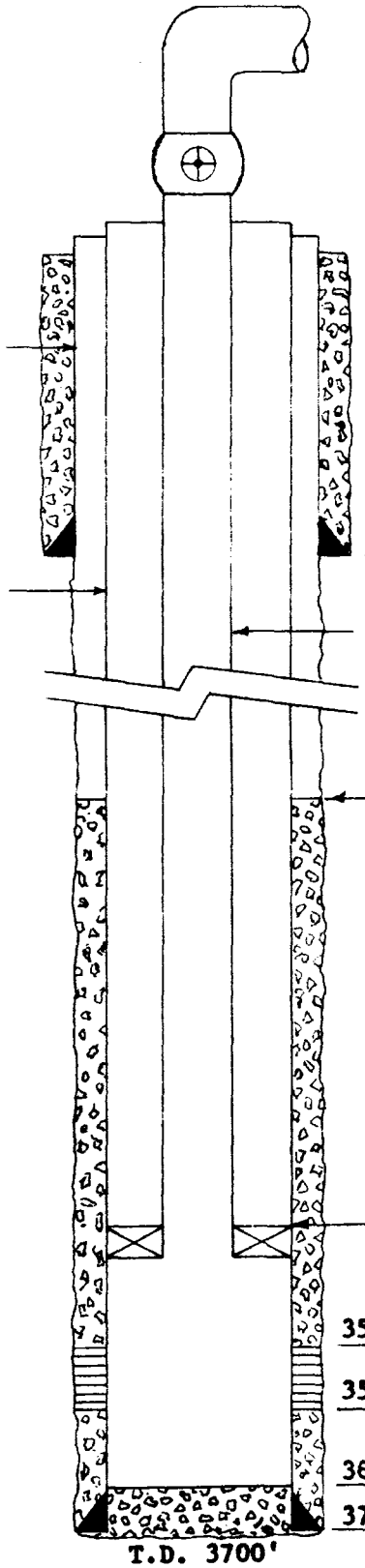
Top Queen 3531'

Top Penrose 3650'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3612'

T.D. 3790'

W. K. Byrom
Flora Davis No. 1
990' FEL & 1650' FNL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 50



Elevation 3310 GL

8 5/8" Csg.
Set with 175 Sacks

250'

5 1/2" Csg.
Set with 300 Sacks

2 3/8" OD Tubing

Calculated Top Cement 2420'

Top Queen 3376'

Top Penrose 3474'

5 1/2" X 2" ROWCO R-3 Tension Packer Set @ Approx. 3492'

3542'

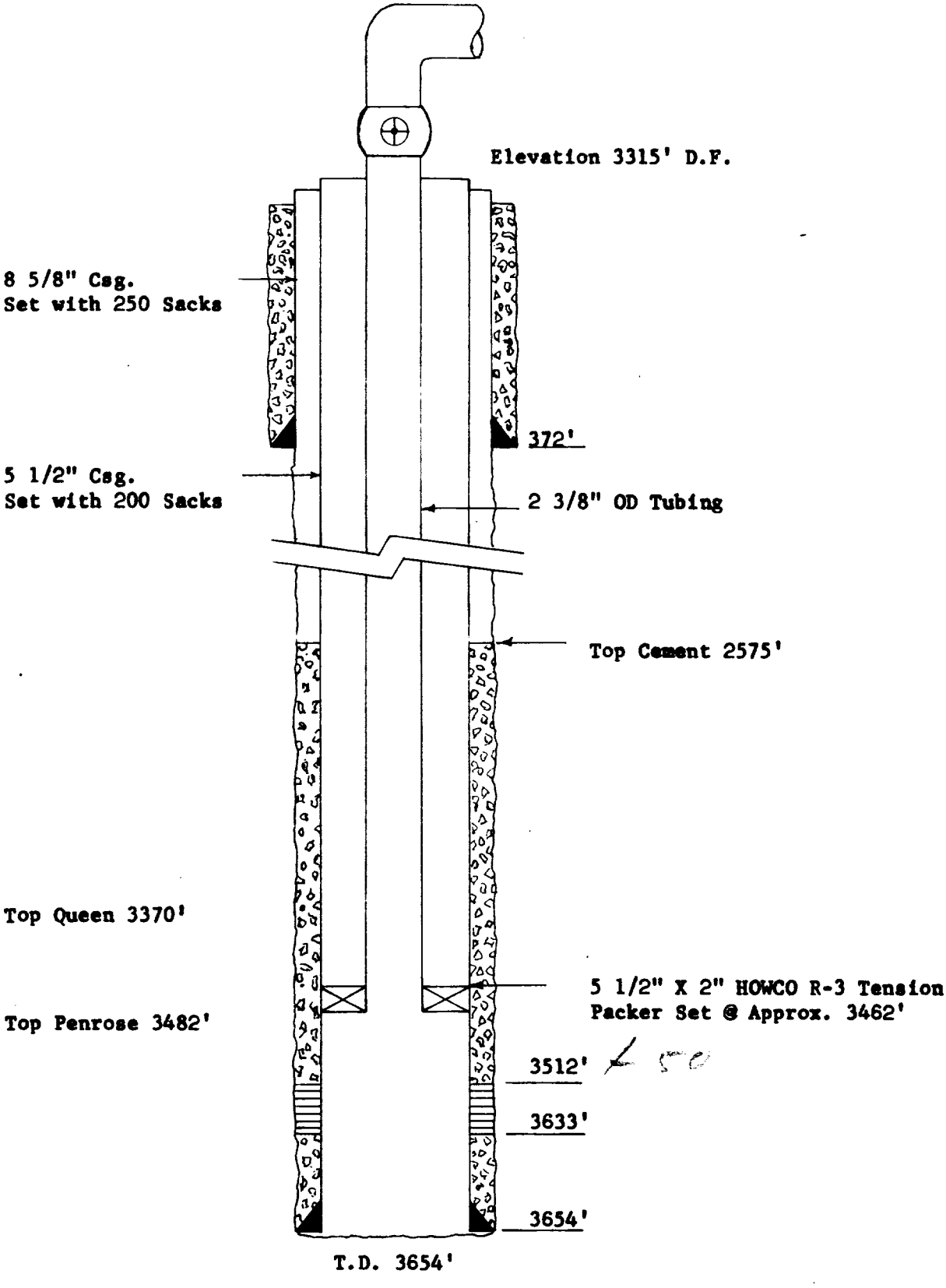
3590'

3695'

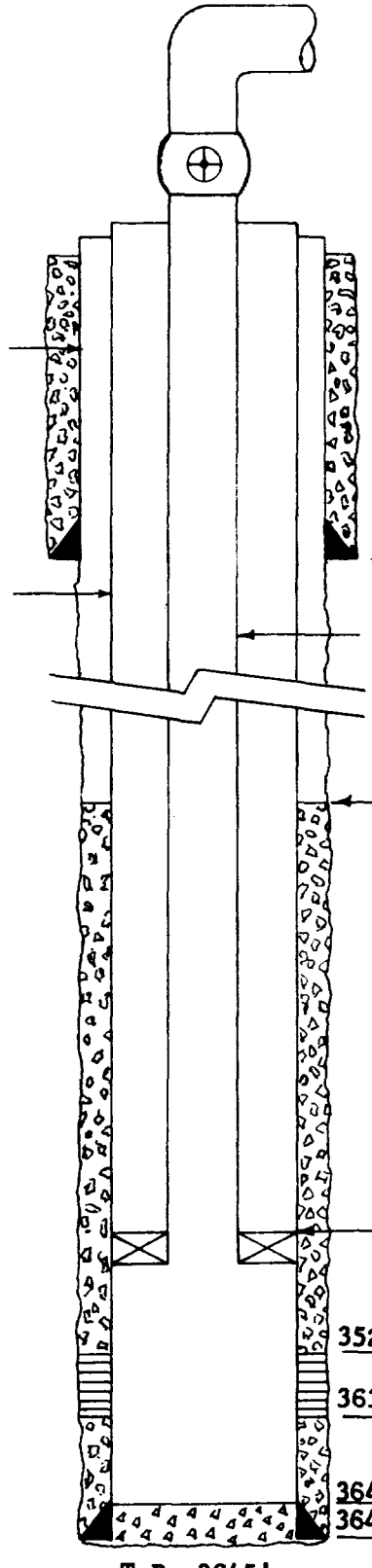
3700'

T.D. 3700'

Skelly Oil Company
Harrison "B" No. 5
1980' FNL & 1980' FWL Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 52



Skelly Oil Company
Harrison "B" No. 9
1980' FSL & 660' FWL Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 54



Elevation 3324' D.F.

8 5/8" Csg.
Set with 225 Sacks

371'

5 1/2" Csg.
Set with 200 Sacks

2 3/8" OD Tubing

Top Cement 2770'

Top Queen 3373'

Top Penrose 3474'

5 1/2" x 2" HOWCO R-3 Tension Packer Set @ Approx. 3573'

3523'

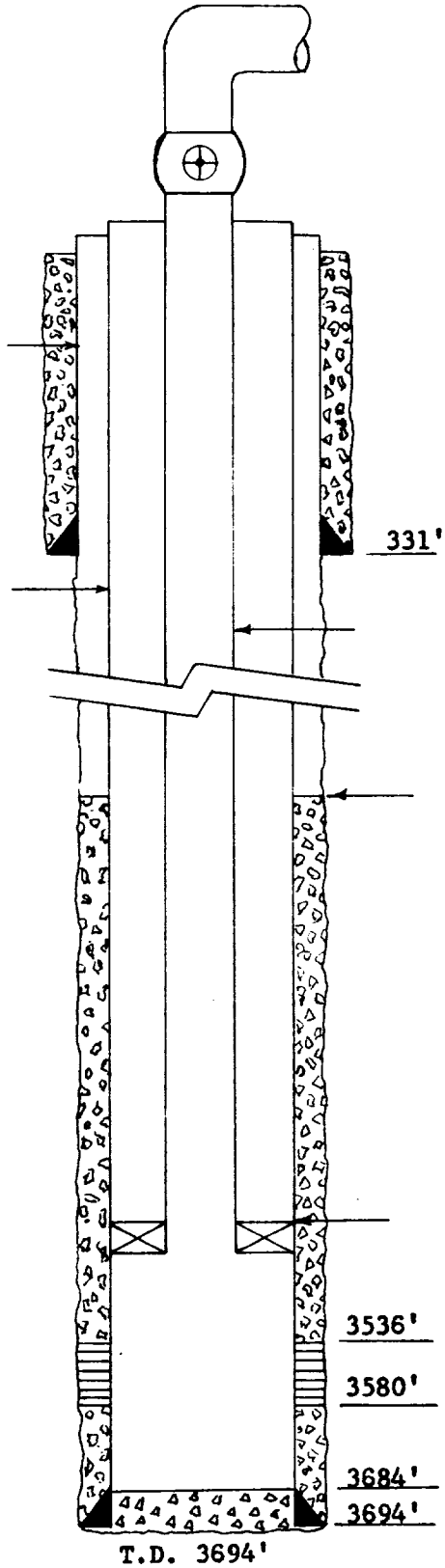
3636'

3644'

3645'

T.D. 3645'

Texas Pacific Oil Company
Clift No. 5
660' FWL & 1980' FSL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 56



Elevation 3341 D.F.

9 5/8" Csg.
Set with 300 Sacks

331'

7" Csg.
Set with 300 Sacks

2 3/8" OD Tubing

Top Cement 1782'

Top Queen 3408'

7" x 2" HOWCO R-3 Tension
Packer Set @ Approx. 3486'

Top Penrose 3514'

3536'

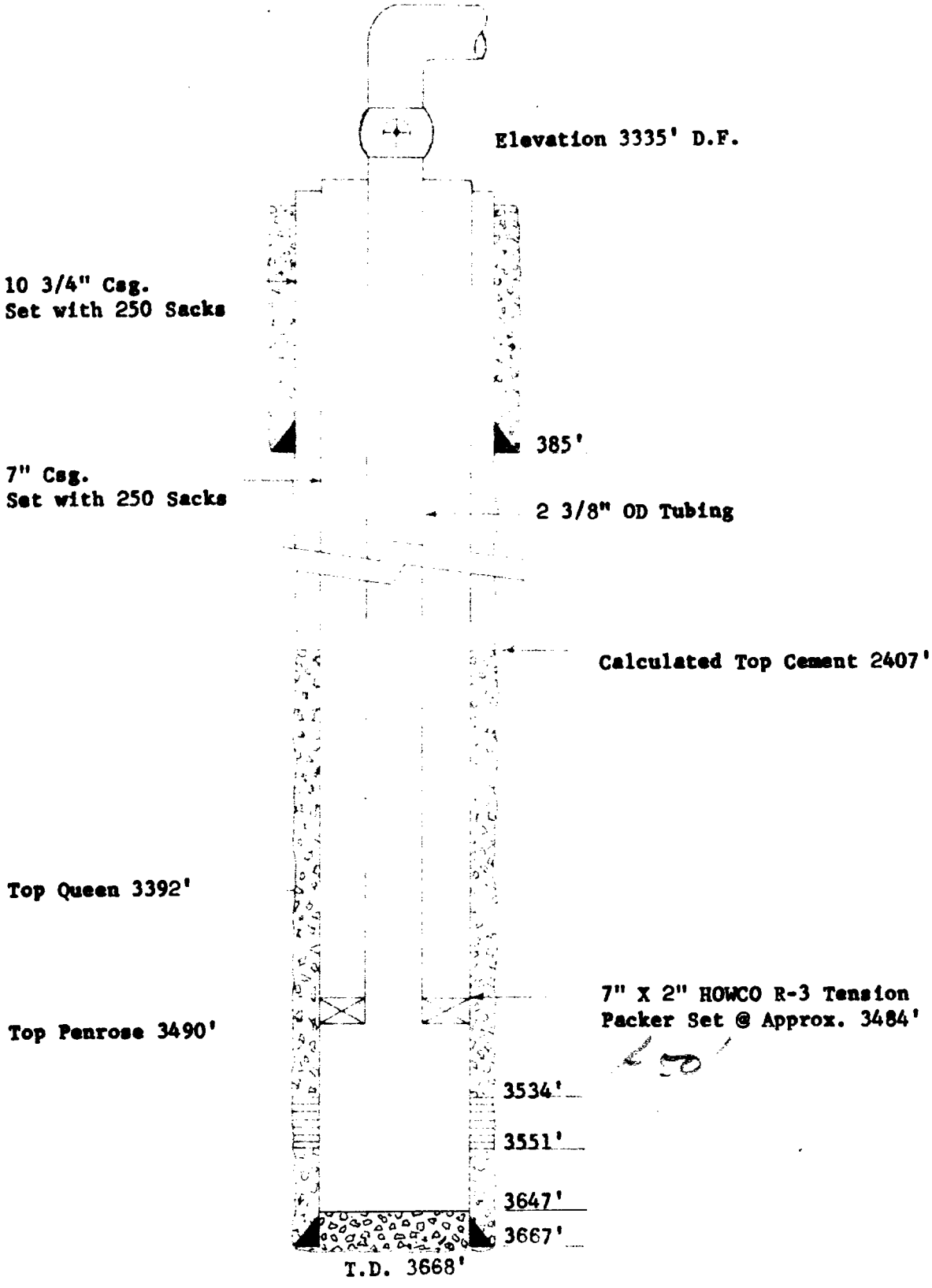
3580'

3684'

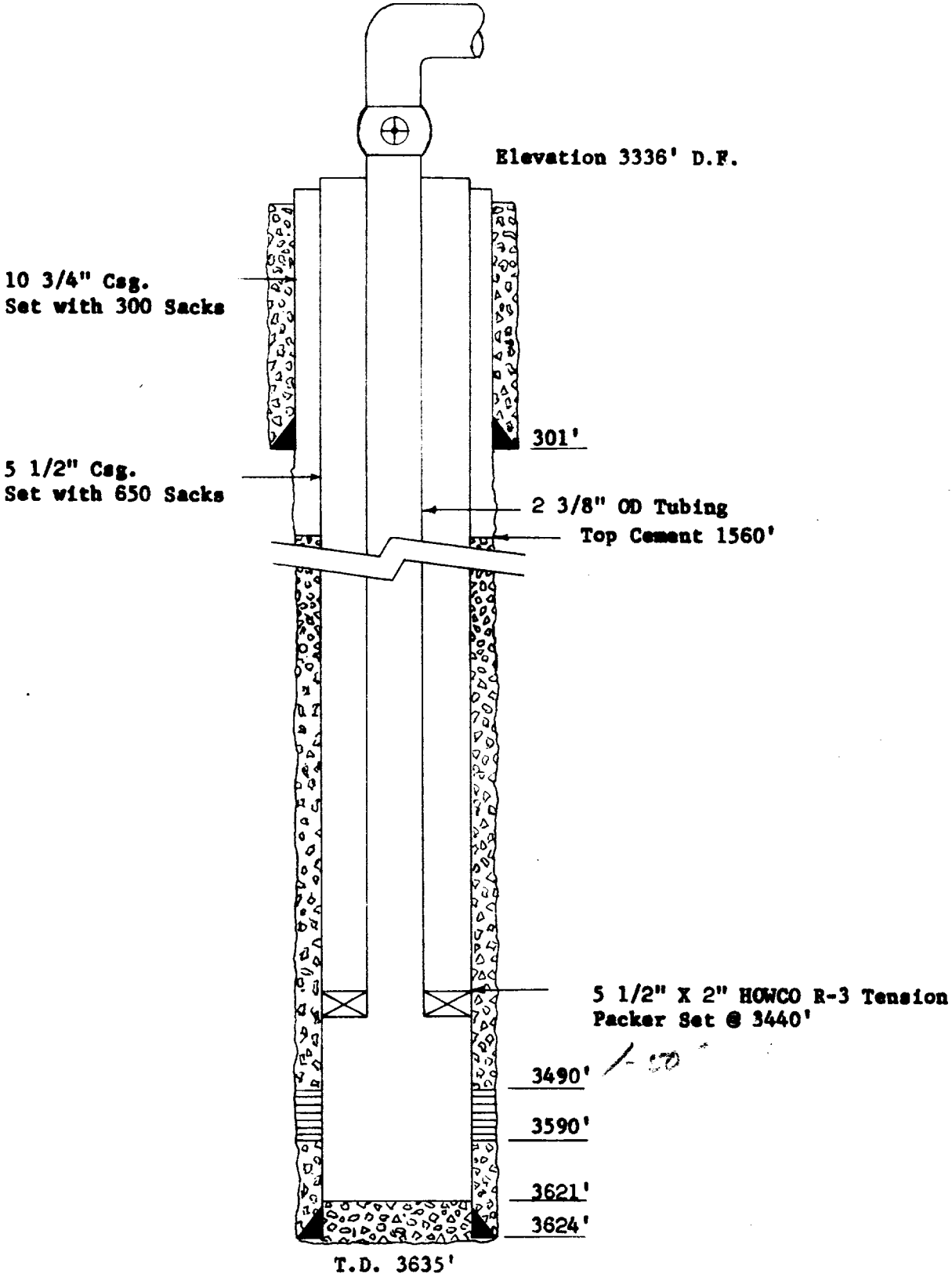
3694'

T.D. 3694'

Texas Pacific Oil Co.
Clift No. 3
1980' FWL & 660' FSL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No.57



Texas Pacific Oil Company
Clift No. 4
330' FSL & 330' FEL Section 8, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 59



Skelly Oil Company
Harrison "B" No. 11
660' FSL & 1980' FWL Section 9, T23S, R37E
Lea County, New Mexico
Langlie Mattix Injection Well
Skelly Penrose "B" Unit Well No. 61