

CASE 3547: Application of SKELLY
OIL CO. for a WATERFLOOD EXPAN-
SION, EDDY COUNTY, N. MEX.

CASE No.
3547

Application,
TRANSCRIPTS,
SMALL Exhibits
ETC.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3547
Order No. R-3214

APPLICATION OF SKELLY OIL COMPANY
FOR A WATERFLOOD EXPANSION, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 5, 1967,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 11th day of April, 1967, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

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

(2) That by Order No. R-2900, the Commission authorized the
institution of a waterflood project in the Grayburg-Jackson Pool
in the Dow Unit Area (now designated Skelly Unit Area) by the
injection of water into the Premier (Grayburg) and San Andres for-
mations through six injection wells in Section 22, Township 17
South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the applicant, Skelly Oil Company, seeks amendment
of said Order No. R-2900 to expand the waterflood interval autho-
rized therein to include the entire Grayburg-Jackson producing
interval, to permit the conversion to water injection of 18
additional injection wells in Sections 14, 15, 22, 23, 26, and
27, Township 17 South, Range 31 East, NMPM, Eddy County, New
Mexico, and the establishment of an administrative procedure
whereby additional wells, within the said unit area, could be
placed on water injection.

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CASE No. 3547

Order No. R-3214

(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 expansion should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That approval of the subject application should increase the efficiency of the subject waterflood project, and otherwise prevent waste and protect correlative rights.

(7) That the subject application should be approved and the project as expanded should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

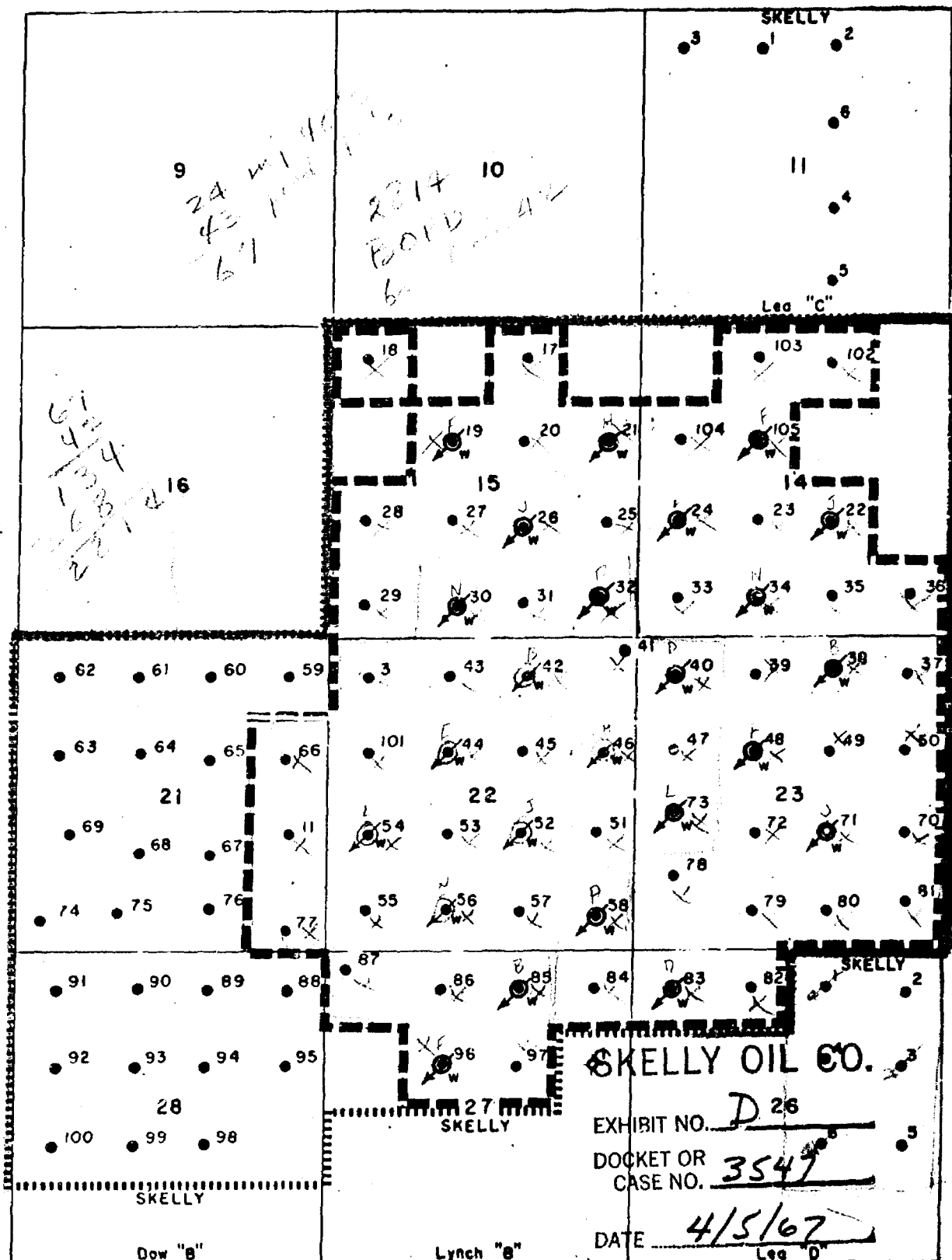
IT IS THEREFORE ORDERED:

That Order No. R-2900 is hereby amended to read in its entirety as follows:

(1) That the applicant, Skelly Oil Company, is hereby authorized to effect a waterflood project in the Grayburg-Jackson Pool in the Skelly Unit Area by the selective injection of water into various zones throughout the entire Grayburg-Jackson producing interval through the following-described twenty-four wells:

EDDY COUNTY, NEW MEXICO
TOWNSHIP 17 SOUTH, RANGE 31 EAST, NMPM

Well	No.	Unit	Section
Skelly Unit -	105	F	14
Skelly Unit -	22	J	14
Skelly Unit -	24	L	14
Skelly Unit -	34	N	14
Skelly Unit -	19	F	15
Skelly Unit -	21	H	15
Skelly Unit -	26	J	15
Skelly Unit -	30	N	15
Skelly Unit -	32	P	15
Skelly Unit -	42	B	22
Skelly Unit -	44	F	22
Skelly Unit -	46	H	22
Skelly Unit -	52	J	22
Skelly Unit -	54	L	22
Skelly Unit -	56	N	22



SKELLY OIL COMPANY
SKELLY UNIT
EDDY COUNTY, NEW MEXICO
TOWNSHIP 17-S, RANGE 31-E



- LEGEND
- GRAYBURG-SAN ANDRES OIL WELL
 - ✕ DRY HOLE
 - |||| SKELLY UNIT
 - PROPOSED PROJECT AREA
 - ⊙ WATER INJECTION WELL
 - ⊙ PROPOSED INJECTION WELL

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CASE No. 3547

Order No. R-3214

EDDY COUNTY, NEW MEXICO
TOWNSHIP 17 SOUTH, RANGE 31 EAST, NMPM (Cont.)

Well	No.	Unit	Section
Skelly Unit -	58	P	22
Skelly Unit -	38	B	23
Skelly Unit -	40	D	23
Skelly Unit -	48	F	23
Skelly Unit -	71	J	23
Skelly Unit -	73	L	23
Skelly Unit -	83	D	26
Skelly Unit -	85	B	27
Skelly Unit -	96	F	27

(2) That the subject waterflood project is hereby designated the Grayburg-Jackson Skelly Unit 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 Grayburg-Jackson Skelly Unit Waterflood Project to include additional wells, within said unit area, on water injection as may be necessary to complete an efficient waterflood injection pattern.

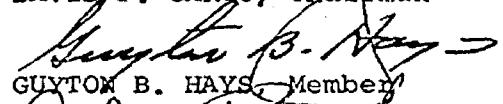
(3) That monthly progress reports of the expanded waterflood project authorized herein shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(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


GUYTON B. HAYS, Member


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

S E A L

esr/

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

May 18, 1967

C Mr. V. E. Fletcher
District Superintendent
Shelly Oil Company
Post Office Box 730
O Hobbs, New Mexico

Dear Mr. Fletcher:

P Reference is made to your letter of May 16, 1967, concerning our letter of May 8, 1967, to Mr. Ronald Jacobs concerning Shelly's Grayburg-Jackson Waterflood Project.

Y Paragraph three of our letter is hereby amended to read in its entirety as follows:

"Inasmuch as Order No. R-3214 amended Order No. R-2900 to include the entire Grayburg-Jackson producing interval from the top of the Queen to the base of the San Andres formation, it is our understanding that you propose to complete many of the injection wells in such a manner as to permit selective injection into more than one zone, while other wells will be completed for single zone injection only. All wells shall be equipped with tubing and packer. Injection of fresh water shall be permitted through the tubing or through the casing-tubing annulus of the dually completed wells and through the tubing of the single completion wells. Injection of produced salt water shall be permitted only through the tubing in single- or dual-completion wells. The tubing of any well which is

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

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Mr. V. E. Fletcher

May 18, 1967

used for the injection of produced salt water shall be plastic coated or cement coated."

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSH/lr

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

Oil Conservation Commission
Artesia, New Mexico

U. S. Geological Survey
Artesia, New Mexico

Mr. Ronald Jacobs
Shelly Oil Company
Post Office Box 1650
Tulsa, Oklahoma 74102



SKELLY OIL COMPANY

P.O. Box 730, Hobbs, New Mexico
May 16, 1967

Re: Skelly Unit General
Eddy County, New Mexico

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
P.O. Box 2088
Santa Fe, New Mexico

Dear Sir:

Reference is made to your letter of May 8, 1967 concerning our Gryaburg-Jackson Skelly Unit Waterflood Project in Eddy County, New Mexico.

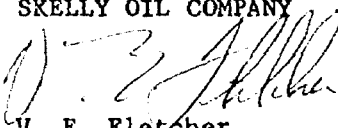
The maximum allowable, under the provisions of Rule 701-E-3, of 2814 barrels per day for the present project area has been checked and found correct.

Statements made in the third paragraph of your letter indicate there may be a misunderstanding as to the Plan of Operations for the Skelly Unit. It is proposed to use coated-tubing, either plastic or cement, only on wells in which produced water is reinjected. As the volume of produced water increases, additional wells will be converted to salt water injection, and coating of the tubing for these wells will be done at the time they are converted to reinjection of produced water. The produced water will be handled by a separate protected system and will be injected only down tubing below a packer. Injection down the casing tubing annulus will be limited to fresh water in all cases.

This plan was pointed out in testimony relating to Case No. 3547 on April 5, 1967. As stated in the testimony, the original plans, given in the Hearing for the Pilot Project in March of 1965, indicated that when the project was expanded, the injection lines and tubing would be coated. However, field tests and operating history have indicated that protection of the fresh water system is not justified at this time. We will continue monitoring to detect any change in the future.

If you have any questions concerning these plans, we will be happy to discuss them with you.

Yours very truly,
SKELLY OIL COMPANY


V. E. Fletcher
District Superintendent

LRH/bh

CC: Mr. G. W. Selinger
Skelly Oil Company
Tulsa, Oklahoma

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

May 8, 1967

C

Mr. Ronald Jacobs
Skelly Oil Company
Post Office Box 1650
Tulsa, Oklahoma 74102

O

Dear Sir:

P

Reference is made to Commission Order No. R-3214, recently entered in Case No. 3547, amending Order No. R-2900 and approving the expansion of Skelly's Grayburg-Jackson Skelly Unit Waterflood Project, (formerly the Dow Unit Waterflood Project).

Y

Injection is to be through the six originally authorized water injection wells plus the 18 new wells authorized for water injection by the subject order.

Inasmuch as Order No. R-3214 amended Order No. R-2900 to include the entire Grayburg-Jackson producing interval from the top of the Queen to the base of the San Andres formation, it is our understanding that you propose to complete many of the injection wells in such a manner as to permit selective injection into more than one zone. Any well so used shall be equipped with a packer and with internally plastic-coated tubing, injection of either fresh or salt water to be down the tubing and the injection of fresh water only down the casing-tubing annulus. Single injection zone wells shall be similarly equipped and the injection of fresh or salt water permitted down the tubing. Produced water shall be reinjected and shall be injected down tubing only.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

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Mr. Ronald Jacobs
Skelly Oil Company
Tulsa, Oklahoma
May 8, 1967

C 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 project will be eligible to receive under the provisions of Rule 701-E-3 is 2814 barrels per day.

O 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.

P 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.

Y

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

Oil Conservation Commission - Artesia, New Mexico
U. S. Geological Survey, Artesia, New Mexico

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

1201 (4-00)

SYMBOLS

DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

AND SAN ANDRES, (2) PERMIT INJECTION INTO 18 ADDITIONAL WELLS LOCATED IN SECTIONS 14, 15, 22, 23, 26 AND 27 IN ADDITION TO SIX WELLS PREVIOUSLY GRANTED, (3) EXPAND 28 WELL PROJECT AREA TO INCLUDE 18 NEW INJECTORS AND 15 PRODUCERS TO MAKE 67 WELL AREA WITH PROVISION FOR FUTURE ADMINISTRATIVE EXPANSION AND CONVERSION WITHIN UNIT AREA, (4) PERMIT SELECTIVE INJECTION INTO VARIOUS ZONES OF DEFINED POOL INTERVAL. FORMAL APPLICATION AND EXHIBITS WILL FOLLOW.

SKELLY OIL COMPANY RONALD J JACOBS=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

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W. P. MARSHALL, PRESIDENT

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A L PORTER JR=

Case 3547

SECRETARY-DIRECTOR OIL CONSERVATION COMMISSION=

STATE LAND OFFICE BUILDING SANTA FE NMEX=
SKELLY IS OPERATOR OF SKELLY UNIT (FORMERLY DOW UNIT)
DESCRIBED SECTIONS 14, 15, 21, 22, 23, N/2 NW/4 26,
NW/4 & N/2 NE/4 & SW/4 NE/4 27, AND N/2 & N/2 S/2
28-17S-31E, EDDY COUNTY. PLEASE SET FOR EXAMINER HEARING
APRIL 5, APPLICATION TO AMEND ORDER R-2900 SO AS TO
(1) ALLOW WATERFLOOD OF ENTIRE GRAYBURG-JACKSON POOL
INTERVAL AS DEFINED INSTEAD OF ONLY PREMIER (GRAYBURG)

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

area, which is equipped with a windmill and is used for stock watering purposes, completed in the red beds of the Dockum group, pumping from a water level of 271 feet, and delivering good quality water (total dissolved solids 893). There is no doubt, from this information, that the red beds of the Dockum group should be protected against contamination.

FEI/ma
encl.
cc-Skelly Oil Co.
F. H. Hennighausen

Yours truly,

S. E. Reynolds
State Engineer

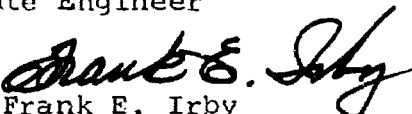
By: 
Frank E. Irby
Chief
Water Rights Div.

Exhibit I - 1 through I - 24 are downhole diagrammatic sketches for the 24 injection wells. Shown are all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated or openhole intervals, tubing strings, including diameters and setting depths, and the type and location of the packer. Also shown on the sketches are the name and depth of the zone or formation into which injection will be made.

The downhole arrangement of injection well equipment will permit selective injection desired to control pressure and volumes within Grayburg-Jackson Pool limits. Injection into the San Andres will be through 2 3/8" O.D. tubing below a packer. Anticipated injection rates and pressures for the San Andres interval are 400 to 600 BWPD per well and approximately 2000 psi, respectively. San Andres injection will be into intervals that are perforated, openhole and combinations of perforated, and openhole completions.

Injection into the Grayburg will be through the casing-tubing annulus at rates and maximum pressure of 100-300 BWPD per well and 1500 psi, respectively. Casing-tubing annular injection will be limited to fresh (Ogallala) water and will be through perforations only. Casing-annular injection will be terminated prior to abandonment of the project. The proposed operation will permit flooding out and abandonment, in approximately ten years, of the San Andres zones. The expected ten year life of the San Andres flood will be shorter than the Grayburg flood by some 5 to 7 years. After abandonment of the San Andres flood, injection into the Grayburg will be down tubing and below a packer which will eliminate the annular injection.

It is anticipated that the selective injection technique will be applied throughout most of the project area. However, as may be noted on Skelly Unit Well No. 22 (I-3), in some instances where reservoir development is poor, either in the Upper Grayburg or Lower San Andres, completion will be made to restrict injection below a packer. Skelly Unit Well No. 30 has the least amount of cement above the intended zone of injection. In this case the top of the cement is 463 feet above the upper most perforation. Surface casing in all injection wells in the proposed project was pressure checked for shut off. In that no fresh water source beds exist in the area, it is our opinion that any damage to potable waters is unlikely.

Exhibit J - 1 through J - 14 are available well logs on injection wells. Available logs on the six current injection wells were submitted at the previous hearing. Logs are available on 14 of the 18 wells to be converted to injection service.

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF SKELLY OIL)
 COMPANY FOR AN AMENDMENT TO ORDER NO. R-2900)
 SO AS TO ALLOW WATERFLOODING OF ENTIRE GRAYBURG-)
 JACKSON POOL INTERVAL, PERMIT INJECTION INTO 18)
 ADDITIONAL WELLS, AND PERMIT EXPANSION OF)
 PROJECT AREA.)

CASE NO. 3547
 FILED _____
 HEARING 7-5-67

A P P L I C A T I O N

Comes now Skelly Oil Company and alleges and states:

1. That it is the operator of the Skelly Unit (formerly Dow Unit), which unit is described as follows:

Sections 14, 15, 21, 22, 23,
 N/2 NW/4 Section 26,
 NW/4 and N/2 NE/4, and SW/4 NE/4 of Section 27, and
 N/2 and N/2 S/2 of Section 28,
 All in Township 17 South, Range 31 East, Eddy County, New Mexico

2. That pursuant to a hearing held April 7, 1965, in Case No. 3226, this Commission by Order No. R-2900 dated May 4, 1965, permitted Skelly Oil Company to conduct waterflood operations on its Dow Unit (now called Skelly Unit) in the Grayburg-Jackson Pool by injection of water into the Premier (Grayburg) and San Andres formations through the following described six wells in Section 22, Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico:

PRESENT UNIT NO.	FORMER LEASE AND WELL NO.	LOCATION UNIT
52	Lynch "A" 4	J
56	Lynch "A" 9	N
54	Lynch "A" 10	L
44	Lynch "A" 13	F
42	Lynch "A" 15	B
46	Lynch "A" 16	H

3. That Skelly Oil Company now proposes to expand the waterflood project and requests that Order No. R-2900 be amended so as to: (a) allow waterflooding of the entire Grayburg-Jackson Pool interval as defined by the Commission instead of only the Premier (Grayburg) and San Andres formations, (b) permit injection into 18 additional wells located as follows:

UNIT WELL NUMBER	LOCATION	
	UNIT	SECTION
19	F	15
21	H	15
22	J	14
24	L	14
26	J	15
30	N	15
32	P	15
34	N	14
38	B	23
40	D	23
43	F	23
58	P	22
71 (former dry hole)	J	23
73	L	23
83	D	26
85	B	27
96	F	27
105	F	14

All in Township 17 South, Range 31 East,
 Eddy County, New Mexico,

which wells are in addition to the six wells previously granted, (c) expand the project area to include additional wells and to provide for future administrative expansion and conversion of additional wells within the unit area mentioned in Paragraph One, above, and (d) to permit selective injection into various zones within the defined limits of the Grayburg-Jackson Pool interval.

4. That attached hereto and made a part hereof is Exhibit "A" which is a plat showing the proposed injection wells and the location of all other wells within a radius of two miles from said proposed injection wells, and the formation from which said wells are producing or have produced. The plat also indicates the lessees within said two-mile radius.

5. That attached hereto and made a part hereof is Exhibit "B" which is a series of diagrammatic sketches showing all required pertinent information pertaining to the downhole completion of the proposed injection wells.

6. That the source of the injected water will be purchased from the Double Eagle Water Company on the unit, and that the source of said water is originally from the Ogallala formation. That applicant anticipates injecting between 12,000 barrels and 14,000 barrels of water per day, which volume includes the six wells presently authorized.

WHEREFORE, PREMISES CONSIDERED, applicant prays that this Commission set this matter down for hearing, that notice hereof be given as required by law, that at the conclusion of said hearing, based on the evidence adduced, enter its order amending its previous Order No. R-2900 as requested in Paragraph Three, above, and for such other orders, rules and regulations as may be necessary in the premises.

Respectfully submitted,

SKELLY OIL COMPANY

George W. Selinger
Ronald J. Jacobs
James B. Grant, Its Attorneys

P. O. Box 1650
Tulsa, Oklahoma 74102

George W. Selinger

Of Counsel:
Mr. L. C. White
White, Gilbert, Koch & Kelly
P. O. Box 787
Santa Fe, New Mexico

State of New Mexico
Oil Conservation Commission



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

Re: Case No. 3547
Order No. R-3214
Applicant:

Skelly Oil Company

Other _____



MAIN OFFICE

MAR 19 PM 7 19

SKELLY OIL COMPANY

P. O. BOX 1650

TULSA, OKLAHOMA 74102

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT

W. P. WHITMORE, MGR. PRODUCTION

W. D. CARSON, MGR. TECHNICAL SERVICES

BARTON W. RATLIFF, MGR. JOINT OPERATIONS

GEORGE W. SELINGER, MGR. CONSERVATION

March 17, 1967

File 3547

Re: Skelly Unit
Eddy County, New Mexico

Mr. A. L. Porter, Jr., Secretary-Director
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Porter:

We are attaching original and four copies of our application to amend Commission Order No. R-2900 pertaining to the waterflood project on our Skelly Unit (former Dow Unit).

By carbon copy of this letter we are furnishing the State Engineer's office a copy of this application, together with exhibits.

Please set this matter down for hearing, as requested in our telegram, before an Examiner, scheduled April 5, 1967.

Yours very truly,

George W. Selinger

RJJ:br
Attach.

cc-State Engineer w/ attach.
P. O. Box 1079
Santa Fe, New Mexico

DOCKET MAILED

Date 3-23-67

Docket No. 10-67

DOCKET: EXAMINER HEARING- WEDNESDAY- APRIL 5, 1967

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 3545: Application of John Yuronka and Robert E. Chandler for compulsory pooling, Lea County, New Mexico. Applicants, in the above-styled cause, seek an order force-pooling all mineral interests underlying the S/2 SW/4 and NE/4 SW/4 of Section 7, Township 22 South, Range 38 East, Lea County, New Mexico, from the surface to the base of the Drinkard formation or to 7400 feet, whichever is the lesser, but excluding the Granite Wash; in the alternative applicants seek the force-pooling in the above-described vertical interval underlying the SW/4 SW/4 only of said Section 7.
- CASE 3546: Application of Stoltz & Company for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the unorthodox location in an undesignated Pennsylvanian gas pool of its Hudson-Federal Well No. 1 at a point 838 feet from the North line and 1650 feet from the West line of Section 4, Township 21 South, Range 29 East, Eddy County, New Mexico.
- CASE 3547: Application of Skelly Oil Company for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order amending Order No. R-2900 to expand the waterflood interval authorized by said order to include the entire Grayburg-Jackson producing interval, to permit the conversion to water injection of 18 additional wells in Sections 14, 15, 22, 23, 26, and 27, Township 17 South, Range 31 East, and further to provide for administrative expansion of said project.
- CASE 3548: Application of Sinclair Oil & Gas Company for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled-cause, seeks approval of the unorthodox location in an undesignated Pennsylvanian gas pool of its Trigg-Federal Well No. 1 at a point 1980 feet from the North line and 660 feet from the West line of Section 27, Township 18 South, Range 27 East, Eddy County, New Mexico.
- CASE 3549: Application of Tesoro Petroleum Corporation for an unorthodox location, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox location for a well to be drilled 1330 feet from the South line and 2310 feet from the West line of Section 1, Township 17 North, Range 9 West, South Hospah Field, McKinley County, New Mexico.
- CASE 3400 (Reopened)

In the matter of Case No. 3400 being reopened pursuant to the provisions of Order No. R-3064, which order established 160-acre

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Examiner Hearing - April 5, 1967

(Case 3400 continued)

spacing units and a gas-oil ratio of 4000 to 1 for the Big Eddy-Strawn Pool, Eddy 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 or 80-acre spacing units and why the limiting gas-oil ratio should not revert to the Statewide limit of 2000 to one.

CASE 3550: Application of Kennedy 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 Grayburg-San Andres formations through three wells located in Sections 27 and 28, Township 16 South, Range 31 East, Square Lake Pool, Eddy County, 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. 3226
Order No. R-2900

APPLICATION OF SKELLY 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 o'clock a.m. on April 7, 1965, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of May, 1965, 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, Skelly Oil Company, seeks permission to institute a waterflood project in the Grayburg-Jackson Pool in the Dow Unit Area by the injection of water into the Premier (Grayburg) and San Andres formations through six injection wells in Section 22, Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico.

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

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

-2-

CASE No. 3226
Order No. R-2900

(5) 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.

IT IS THEREFORE ORDERED:

(1) That the applicant, Skelly Oil Company, is hereby authorized to institute a waterflood project in the Grayburg-Jackson Pool in the Dow Unit Area by the injection of water into the Premier (Grayburg) and San Andres formations through the following-described six wells in Section 22, Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico:

<u>LEASE AND</u> <u>WELL NO.</u>	<u>LOCATION</u> <u>UNIT</u>
Lynch "A" 4	J
Lynch "A" 9	N
Lynch "A" 10	L
Lynch "A" 13	F
Lynch "A" 15	B
Lynch "A" 16	H

(2) That the subject waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(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, Chairman

GUYTON B. HAYS, Member

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

S E A L

esx/

WHITE, GILBERT, KOCH & KELLY
(GILBERT, WHITE AND GILBERT)

ATTORNEYS AND COUNSELORS AT LAW

LINCOLN BUILDING

SANTA FE, NEW MEXICO 87501

March 21, 1967

CARL H. GILBERT (1891-1963)

L. C. WHITE

WILLIAM W. GILBERT

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(AREA CODE 505)

Case 3547

Mr. A. L. Porter, Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 2000
Santa Fe, New Mexico

Re: Application of Skelly Oil Company
For Amendment to Order R-2900

Dear Mr. Porter:

Please enter our firm as resident counsel for Skelly Oil Company
on the above matter scheduled for hearing before an examiner on
April 5, 1967.

Very truly yours,

L. C. White

L. C. WHITE

LCW:el

DOCKET MAILED

Date 3-22-67
OK



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

March 29, 1967

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

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, N. M.

Dear Mr. Porter:

Reference is made to the application of Skelly Oil Company which seeks an amendment to Order R-2900 so as to allow water-flooding of the entire Grayburg-Jackson Pool Interval, permit injection into 18 additional wells and permit expansion of the project area in Sections 14, 15, 21, 22, 23, 28, 27 and 26, in Township 17 South, Range 31 East.

I have received a copy of the application, plat marked Exhibit A-1, plat marked Exhibit A-2, plat marked Exhibit A-3, 24 diagrammatic sketches of wells, the first of which is marked Exhibit B, the remainder unnumbered, a tabulation consisting of 2 sheets showing well unit numbers and former lease and well numbers marked Exhibit C, producing and development history marked Exhibit E, performance graph marked Exhibit F, well status and production data marked Exhibit G, injection well completion data marked Exhibit H, and several injection well logs on which I can find no exhibit identification.

In addition to the application and exhibits, I have received a one-page copy of notes to be presented at the hearing, a copy of which I am attaching. It is noted, from the last sentence of the 4th paragraph of the notes, that Skelly does not believe that fresh water exists in the area. Our records indicate that there is a well in Sec. 34, immediately south of the project

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 5, 1967

EXAMINER HEARING

IN THE MATTER OF:

Application of Skelly Oil Company
for a waterflood expansion, Eddy
County, New Mexico.

Case 3547

BEFORE: Daniel S. Nutter, Examiner

Transcript of Hearing

MR. NUTTER: We will call Case 3547.

MR. HATCH: Case 3547. Application of Skelly Oil Company for a waterflood expansion, Eddy County, New Mexico.

MR. JACOBS: If the Commission please, Ronald Jacobs for Skelly Oil Company. We have two witnesses I would like to have sworn, please.

(Witnesses sworn)

MR. NUTTER: Let the record show we do have a letter of appearance on behalf of Mr. Jacobs and Mr. L. C. Gwynn?

MR. JACOBS: By way of explanation, Mr. Examiner, I think a brief statement might be in order here.

Skelly Oil Company desires to expand it's pilot waterflood project on the Skelly Unit in the Grayburg-Jackson Pool in Eddy County. In April 1965, this Commission entered it's approval and Skelly initiated a six injection well, 80-acre five spot pilot waterflood project. Successful response to the secondary recovery operation has motivated Skelly's interest to expand the project at this time.

We will seek to do four things by this application, Mr. Examiner. One, expand the current 28-well waterflood project to include an additional area of eighteen injection wells and fifteen additional producing wells, making a total of sixty-seven wells in the expanded project.

Two, inject water into all intervals included within

the vertical limits of the Grayburg-Jackson Pool.

Three, selectively complete the water injection wells as may be required, to permit separate and simultaneous injection into the vertical limits of the Grayburg-Jackson Pool.

And, four, request that this order provide for future expansion by Administrative Approval for the remainder of the wells within the Unit.

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

DIRECT EXAMINATION

BY MR. JACOBS:

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

A My name is J. T. Cox, I am employed by Skelly Oil Company as a Senior Reservoir Engineer in the Hobbs Office.

Q Mr. Cox, have you heretofore testified before this Commission on prior occasions and have your qualifications been recognized?

A Yes.

Q Are you familiar with the application in this case?

A Yes.

Q As part of your duties, you have under your super-

vision the Skelly Unit waterflood project?

A Yes, sir.

Q Would you please relate to the Examiner just what was done on the prior hearing which instituted the pilot waterflood project?

A Skelly Oil Company on April 7th, 1965, presented testimony in Case Number 3226 at the New Mexico Oil Conservation Commission Examiner's Hearing in Santa Fe, New Mexico. The testimony was in support of Skelly's application to institute a waterflood project in the Grayburg-Jackson Pool in its Dow Unit area, which is presently called the Skelly Unit Area, by injection of water into the Premier (Grayburg) and San Andres formations. The six original injection wells in that proposed project are located in Section 22, Township 17, South Range 31 East, Eddy County, New Mexico. The Commission formally approved the application by order R-2900, dated May 4th, 1965.

MR. JACOBS: In that regard, Mr. Examiner, we would request that the Commission take administrative notice of it's order R-2900 and move that that order be incorporated by reference into this record.

MR. NUTTER: We can incorporate the whole Case, if you wish, Mr. Jacobs.

MR. JACOBS: Yes, we would so request that.

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MR. NUTTER: Case 3226 is incorporated into the record of this Case.

Q (By Mr. Jacobs) Why did you change from the Dow Unit which was authorized by this previous order we have mentioned to the Skelly Unit?

A On January 1st, 1967, by mutual agreement of the New Mexico Oil Conservation Commission, the United States Geological Survey and Skelly Oil Company, the name of the property referred to as the "Dow Unit" in the previous Hearing, was changed to "Skelly Unit". Also, in order to utilize electronic data processing procedures, the lease names were deleted and the wells were assigned new numbers.

Q How do you propose to expand the project area?

A Skelly seeks approval to expand its current waterflood project within the Skelly Unit area. The current project includes six injection wells and a fully developed project area of twenty-eight wells. The present expansion program includes conversion of eighteen wells to injection service. The new project area, considering the current and the present expansion program, will incorporate 24 injection wells and forty-three producing wells, a total of sixty-seven wells.

Future expansion to complete the Skelly Unit Waterflood Project will include a total of ninety-one

existing wells.

Q Now, you are requesting that the entire Grayburg-Jackson Pool be incorporated into the interval in which waterflood can be accomplished. Would you define that Pool?

A Well, the Skelly Unit Waterflood is in the Grayburg-Jackson Pool. The vertical limits of this pool are defined from the "Top of the Queen Formation to the base of the San Andres Formation." In Skelly's original application and the Commission's Order Number R-2900, water injection into the Premier-(Grayburg) and San Andres formations was set forth as the interval over which water injection was granted. Skelly requests that the interval injection be extended to include all intervals within the vertical limits of the Grayburg-Jackson Pool.

Potential, secondary oil recovery exists in the upper zones of the Pool and Skelly wishes to develop its waterflood project to include those zones.

Q How do you propose to inject water into these various injection wells?

A Skelly plans to selectively complete injection wells in the waterflood project. Performance of Skelly's pilot project indicates the need for separate injection into the Grayburg and San Andres Formations. Separate injections will result in better vertical distribution of injected fluid by

permitting control of injection pressures on the two formations. Also, future operational problems in producing wells, will be reduced by the opportunity to regulate injected volumes into each formation.

Q Has this selective injection been accomplished in the area surrounding the Skelly Unit on prior occasions?

A Yes, it has. Skelly plans to selectively complete it's injection wells in a manner similar to Hudson and Hudson's proposal presented in testimony concerning Order R-3151. The Commission's order of November 14th, 1966, granted Hudson and Hudson the approval to drill an unorthodox location and to selectively complete their lease-line injection well adjacent to the Skelly Unit project. The selective completion by utilization of an annulus-tubing and tubing completion will permit Skelly to implement separate injection into the intervals of the Grayburg-Jackson Pool.

(Whereupon Applicant's Exhibits A through J were marked for identification)

Q (By Mr. Jacobs) I direct your attention now, to what has been marked for identification as Exhibit A. Would you please relate to the Examiner what this Exhibit shows.

A The Skelly Unit Waterflood Project is located in Township 17, South, Range 31, East, Eddy County, New Mexico. Shown on Exhibit A is an outline of the Skelly Unit and the

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present project area, current secondary recovery projects in the area, all wells located within a two-mile radius, the produced and producing formations and all lessees of the area. Skelly Oil Company owns one hundred percent of the working interest in the four thousand and forty acres of oil and gas leases in the Skelly Unit. The Unit comprises all of Sections 14, 15, 21, 22, 23, and the north half of the northwest quarter of Section 26, the north half of Section 27, except for the southeast quarter of the northeast quarter, and all of Section 28 except for the south quarter.

The proposed waterflood project expansion includes all developed acreage in the Unit except for that in Sections 21 and 28.

Q Does Exhibit A show the other projects that are being conducted in the Grayburg-Jackson Pool, waterflood projects?

A Yes, the Exhibit does. Waterflood projects in the area of the Skelly Unit that may be noted are Sinclair's Oil and Gas projects which include the Turner A and Turner B, the Russell Project and the Keel-West Project.

Q Where are they located in relation to the Skelly Unit?

A These projects are located to the west and northwest of the Skelly Unit.

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Q And they are labeled on the map?

A They are outlined on the map and labeled.

Q All right. Go ahead.

A Other projects would be Newmont's East Square Lake project, Ryder Scott's Carper Kennedy project, Aztec Oil and Gas Robinson Unit, Standard of Texas. Maljamar Grayburg Unit, Hudson and Hudson's Puckett project, Con Oco's Maljamar Co-op Unit and Ambassador Pearsal Queen Sand Unit.

Q And all of these projects that you have mentioned are shown and labeled on Exhibit A, is that correct?

A That is correct.

Q I direct your attention now to what has been marked for identification as Exhibit B. Would you please relate to the Examiner what this Exhibit shows.

A Exhibit B is a plat showing the Skelly properties with the earlier lease names and well numbers, and the more recently adopted well identification. The lease names Dow A, Dow B, Lea A, Lea B, Lynch A and Lynch B have been dropped. All well names are called Skelly Unit and all wells in the Unit have been renumbered from 1 to 105. The previous designation of Dow Unit has been changed to Skelly Unit. The purpose of these changes was to be consistent with the Unit name specified in the Unit Agreement and to allow existing data processing procedures to serve the property.

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Q Now, does Exhibit C show a tabulation of the well's former and current identification?

A Yes.

Q And on that Exhibit C you show the former lease and well number and then you also show the present well number, is that correct?

A That is correct.

Q I direct your attention now to what has been marked for identification as Exhibit D. Would you please relate to the Examiner what this Exhibit shows?

A Exhibit D shows the project area that will be in effect by Skelly's proposed project expansion. The original project area contains six injection wells and twenty-two producing wells. Skelly proposes to convert an additional eighteen wells to injection service, thereby, causing the project area to comprise twenty-four injectors and forty-three producers. The maximum waterflood allowable for the proposed project area, based on a 42 barrel per day per well allowable, would be two thousand eight hundred and fourteen barrels per day.

The project will be developed using existing wells and represents an eighty-acre five-spot injection pattern. Injection water will be purchased from the Double Eagle Water Company, formerly Caprock Water Company. The source of this

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injection water is the Ogallala Formation. Water analyses from this source water and the interval into which injection is intended was submitted with the original application for Case No. 3226.

Q What plan does Skelly have for expansion and full development of the Skelly Unit waterflood project?

A Skelly plans to complete initiation of the waterflood program on its Skelly Unit during this year. In the last half of 1967, upon approval of this application, the Commission will be requested administratively to allow further expansion of the project. Plans at this time, call for conversion of fourteen wells to injection in Sections 21 and 28, and conversion of several wells along the lease line within the Skelly Unit. Negotiations are in progress with offset operators to permit either cooperative flooding across lease lines or to drill lease line injection wells. The total number of existing wells in the Skelly Unit, including the Skelly Unit No. 71, located in Section 23 which will ultimately be reconditioned or redrilled, will be ninety-one wells for the total Unit. The project allowable would be three thousand eight hundred twenty-two barrels per day based on the forty-two barrels per day, per well waterflood allowable.

Q Were Exhibits A through D inclusive, prepared by

you or under your supervision and direction?

A Yes, they were.

MR. JACOBS: We will offer Exhibits A through L. We have an additional witness which will go into the actual injection, Mr. Examiner.

MR. NUTTER: Exhibits A through D will be admitted in evidence.

(Whereupon Applicant's Exhibits
A through D were admitted in
evidence)

* * * * *

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Cox?

A Yes, sir.

Q It is proposed now to put this seventy-one on. This is one of your immediate proposed injection wells, is it not?

A Yes, sir, it is.

Q I notice it is shown as a dry hole here and it wouldn't count in the allowable unless it were an injection well?

A That's correct, sir. Our plans are to either re-condition or re-drill this location.

MR. NUTTER: Are there any questions of Mr. Cox. He may be excused.

(Witness excused)

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

DIRECT EXAMINATION

BY MR. JACOBS:

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

A Larry R. Hall, Advanced Production Engineer with Skelly Oil Company in Hobbs, New Mexico.

Q Have you heretofore testified before this Commission as a petroleum engineer and have your qualifications been recognized?

A They have.

Q Do you have under your supervision the area known as the Skelly Unit?

A That is correct.

Q Have you prepared certain exhibits and testimony with regard to the hearing in this case?

A I have.

Q I direct your attention, now, to what has been marked for identification as Exhibit E, would you please relate to the Examiner what this Exhibit shows?

A Exhibit E is a graph showing the producing and development history for the area. Skelly's Lea C and Lea D

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leases, as well as the Skelly unit are reflected in this data. The New Mexico Oil Conservation Commission records report, as of January 1, 1967, 4,953,630 barrels of oil have been produced in the Skelly Grayburg-Jackson wells in the area. Production prior to water injection operations in 1965 was declining at 20% per year. During the period of 1965 and 1966, four new wells were drilled and one existing well was plugged back to partially complete infield development for the water-flood project.

Response to water injection may be noted on the area composite graph Exhibit E, in that the recent completions account for only 2,600 barrels of the 21,800 barrels per month shown for December, 1966. Average daily producing rates for the portion of this area included in the proposed expansion was 6.3 barrels of oil per day, per well as of January, 1967. Ultimate primary is estimated to be 5.6 million barrels with the remaining primary being approximately 687,000 barrels as of January 1, 1967. This indicates 88% depletion of primary.

Q I direct your attention now to what has been marked for identification as Exhibit F. Would you please relate to the Examiner what this Exhibit shows?

A Exhibit F is a monthly oil producing rate and well development for the original project area. Since the original application of the project, two new wells have been drilled in

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the project area. These are Skelly Unit Wells, No. 30 and Well No. 43. The monthly oil producing rate for January, 1967 shows an increase of 4,900 barrels over the indicated primary decline. Actual monthly oil production that is attributable to water injection is 3,600 barrels of oil per month. The secondary oil recovery to February 1, 1967, is estimated to be 36,750 barrels. In January, 1967, the producing rate for the project area was 357 barrels of oil per month per producing well. This is compared to the rate prior to the water injection in March, 1965 of 192 barrels of oil per month per well, an 86% increase.

Q Why do you propose to conduct waterflood operations in the Upper Grayburg zones, also?

A The newly drilled wells and recent completions in this Skelly Unit have shown the Upper Grayburg zones to be of sufficient development to warrant inclusion on the secondary recovery program. Three new wells have been drilled in the Skelly Unit area, in the area of the proposed expansion and an evaluation of the Upper Grayburg intervals indicate additional reserves may be recovered by water flooding these zones. Production tests isolating the Upper Grayburg from the San Andres and Premier intervals have shown substantial oil recovery from these upper intervals.

Q I understand you propose to selectively inject into

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these various formations within the Grayburg-Jackson pool.
Why is that?

A Our evaluation of injection well performance in the Skelly pilot project indicates better vertical distribution of injected fluid can be obtained by separating injection into the Grayburg and San Andres formations. Our injectivity profiles reveal distribution into all porous members obtained where the Grayburg and San Andres are separated.

A study to determine the maximum injection pressures shows that the San Andres can withstand higher injection pressures than the Grayburg. Separate injection will afford the opportunity to control volumes, thus permitting floodout of the lower zone first and also will result in better vertical conformance which will yield additional oil recovery. Consequently, Skelly desires to selectively complete its injection wells to permit isolated injection into the Queen-Grayburg and into the San Andres formations.

Q I direct your attention now to what has been marked Exhibit G. Would you please relate to the Examiner what this Exhibit shows?

A Exhibit G is a tabulation of well production data for wells in the proposed project area. Shown on this Exhibit for all producing and proposed injection wells, are the present and former lease and well number plugged back for a total

depth; the production casing, size and setting depth; the producing interval; completion date, month and year; initial potential; cumulative oil production from the Grayburg-San Andres to January 1, 1967; the current oil producing rate and the proposed project well status.

Q I direct your attention now to what has been marked for identification as Exhibit H. Would you please relate to the Examiner what this exhibit shows?

A Exhibit H is a tabulation of the injection well data for the project area. These data are supplementary to Exhibit G and provide the following additional information: The surface casing, the size, the setting depth, the volume of cement used and the cement top. In regards to production casing, the size, weight, grade, setting depth, volume of cement used and the cement top.

Q I direct your attention now to Exhibit I which is actually a series of Exhibits. Would you please relate to the Examiner what these exhibits show?

A Exhibit I contains twenty-four pages. Exhibit I, pages one through twenty-four, are the downhole diagrammatic sketches for the twenty-four injection wells. Shown on these sketches are all casing strings, including diameters, setting depths, quantities used and tops of cement, perforated or open-holed intervals, tubing strings, including diameters and

setting depths, the type and location of the packer. Also shown on these sketches are the name and the depth of the zone or formation to which injection is intended.

Q How do you actually propose to inject into the San Andres, and what pressures do you anticipate?

A This downhole arrangement of our injection well equipment, will permit our selective injection that is desired to control the pressures and volumes within the Grayburg-Jackson pool. Our injection into the San Andres will be through two and three-eighths inch O.D. tubing below a packer. Anticipated injection rates and pressures for the San Andres interval are four hundred to six hundred barrels of water per day per well and approximately 2,000 P.S.I. The San Andres injection will be into intervals that are perforated, open hole, and combinations of perforated and open hole completions.

Q How do you plan injection into the Grayburg formations and what pressures and rates do you anticipate?

A The injection into the Grayburg will be through the casing tubing annulus at rates and maximum pressure of one hundred to three hundred barrels of water per day per well and fifteen hundred P.S.I. respectively. Casing tubing annular injection will be limited to fresh Ogallala water and will be through perforations only. Casing annular injection

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will be terminated prior to the abandonment, in approximately ten years of the San Andres zones. The expected ten year life of the San Andres flood will be shorter than the Grayburg flood by some five to seven years. After abandonment of the San Andres flood, injection into the Grayburg will be down tubing and below a packer which will eliminate the annular injection.

Q In your opinion, will the proposed injection program protect the fresh water sands within the area?

A Yes, sir, it is my opinion it will do so. It is anticipated that the selective injection technique will be applied throughout most of this project area. However, as may be noted on the Skelly Unit Well No. 22 which on Exhibit I, page 3, in some instances where reservoir development is poor, either in the Upper Grayburg, or lower San Andres, completion will be made to restrict injection below a packer. Skelly Unit Well No. 30 has the least amount of cement above the intended zone of injection. In this case the top of the cement is 463 feet above the uppermost perforation. Surface casings in all injection wells in the proposed project were pressure checked for shut-off. It is our opinion that no damage to potable waters will occur, due to the annular injection being limited to fresh water only.

Q I direct your attention, now, to what has been

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marked for identification as Exhibit J. Would you please relate to the Examiner what that Exhibit is?

A Exhibit J, one through fourteen, are the available well logs on injection wells. Available logs on the six current injection wells were submitted at the previous hearing. Logs are available on fourteen of the eighteen wells to be converted to injection service.

Q In your opinion is this proposed waterflood project feasible, and if so, on what do you base that opinion?

A Yes, sir, it is my opinion that it is feasible. Our original approach to water flooding the Skelly Unit property included installation of the pilot project to help evaluate performance and expenditures that would be required for remedial well work. The proposals presented in this hearing are directly related to the evaluation of the pilot and additional information gathered during the infield drilling of wells to serve the expansion water flood project. Information gained in the past two years of pilot operation and additional insight into local water flooding operational problems, has led Skelly to develop the following procedure for the expansion project.

Q What plans do you have for protection of the pipe and equipment in this unit?

A Original plans of the project were to coat all tubing

and injection lines. Our field tests to evaluate corrosion rate have indicated the injection water to be very mildly corrosive. On this basis, justification to protect the system is not warranted. However, continued monitoring will be made to detect any change in the future.

Produced water will be re-injected by utilizing a separate injection system. This system will be protected from corrosion by cement lining injection lines and coating the injection well tubing. As produced water volumes increase, selected wells will be converted from the fresh water system to the produced water system, and the salt water will be injected below the packer.

Q When do you propose to actually physically expand this project and commence injecting into the additional wells?

A It is currently Skelly's plans to have the current proposed expansion in affect by January 1, 1967.

Q What month was that?

A Excuse me, July 1st. Design and well work for inclusion of the remainder of the Skelly unit us under study at this time. Plans are scheduled to complete the waterflood expansion this year. Upon approval of this application, administrative approval for this phase of the project will be requested.

Q Did you prepare Exhibits E through J, or were they

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prepared under your supervision and direction?

A They were.

MR. JACOBS: We offer into evidence Exhibits E through J.

MR. NUTTER: Skelly's Exhibits E through J will be admitted in evidence.

(Whereupon Skelly's Exhibits E through J were admitted into evidence)

MR. JACOBS: That's all we have on direct, Mr. Examiner.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Hall, I just want to be clear on two or three things here. Now, in the case of dual completions, all of the annular injection will be fresh water?

A That is correct.

Q You will have a second system for re-cycling produced water?

A That is right.

Q And this will be handled through coated line pipes and coated tubing?

A Yes, sir.

Q And in each case, it will be under the packer?

A That is correct.

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 1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q Now, this Well No. 71, I think that is the well that was shown on one of the earlier Exhibits as being the dry hole?

A That is correct.

Q I presume that is why it has got this odd looking casing program?

A Yes, sir, it is odd and we propose -- it is our current plans to go in and re-open the well to the total depth and set a string of pipe from TD to surface and from cement to surface.

Q What did they do, shoot off the eight and five-eighths inch pipe --

A They did.

Q -- in 206 and pull it?

A Yes, sir, that is correct.

Q So, you will circulate the cement to the surface on your four and one half when you re-complete the well?

A That is correct.

Q Now, I notice that the most shallow depth for the setting of any surface pipe is in Well No. 22. No, correction, Well No. --

A Thirty, I believe it is.

Q Well No. 30, being at 533 feet?

A Yes, sir.

dearnley-meier

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Q What formation is that?

A It is in, I believe it is in hydrid, sir, it is just above the top of the salt.

Q I see. So this being the most shallow, the surface pipe, is below any water that occurs in the area?

A Yes, sir.

Q Any fresh water?

A Yes, sir. We have not in any of our -- Well, most of the wells were drilled by cable tools and we have no shallow fresh water sand reported on any of our drilling records.

Q I see. Thank you.

MR. NUTTER: Are there any other questions of Mr. Hall?

MR. JACOBS: I believe the Commission's files reflect or should reflect a letter from the State Engineer's Office. Of course, all of these Exhibits were sent to Mr. Irby of the State Engineer's office, and conferences were held with him and I believe, if you do not have a copy of that letter, we have an extra copy. Do you have one?

MR. NUTTER: We have a copy of the letter dated March 29th --

MR. JACOBS: That is the letter.

MR. NUTTER: -- Mr. Jacobs, I don't happen to have

dearnley-meier

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an original of that. I suppose our office did receive an original?

THE WITNESS: We got the original.

MR. NUTTER: Maybe it was the attachments then that were supposed to be sent to us. Because he says he is sending an attachment along with this.

THE WITNESS: It was a copy of the testimony, sir.

(Whereupon an off the record discussion was held)

MR. NUTTER: Yes, sir, this is the original of the letter which we had a copy of and he is referring to the last sentence on the fourth paragraph of the notes in which he has taken exception to the statement that there were no fresh waters in the area.

MR. JACOBS: Well, we didn't know that there were but we found out that there was a very small well apparently some distance south of the Unit.

THE WITNESS: It is in Section 34 to the south of the unit.

MR. NUTTER: This is somewhat over a mile away from your project.

THE WITNESS: Yes, we don't know the exact sectional location. It could be as close as a mile and as far as a mile and a half.

dearnley-miller

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MR. NUTTER: But at least there is an intervening mile in between Section 34 and your project, isn't there? Oh, no, you do have some wells in the north half of Section 27.

THE WITNESS: In the north half of 27, yes.

MR. NUTTER: I see. Are there any other questions of Mr. Hall? He may be excused.

(Witness excused)

MR. JACOBS: That's all of the direct testimony we have.

MR. NUTTER: Does anyone have anything to offer in Case 3547? Mr. Hatch?

MR. HATCH: Do you want this read into the record?

MR. NUTTER: Just a summary of what it says there, George.

MR. HATCH: This is a letter from the State Engineers Office, dated March 29, 1967. I will read this last paragraph into the record. "In addition to the application and Exhibits I have received a one-page copy of the notes to be presented at the hearing, a copy of which I am attaching. It is noted, from the last sentence of the fourth paragraph of the notes, that Skelly does not believe that fresh water exists in the area. Our records indicate there is a well in Section 34, immediately south of the project

dearnley-meier

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area, which is equipped with a windmill used for stock watering purposes. completed in the red bed of the datum group pumping from a water level of 271 feet and delivering good quality water, total dissolved solids 893. There is no doubt, from this information, that the red beds of the datum group should be protected against contamination and signed by Frank E. Irby, State Engineer."

MR. NUTTER: Thank you, Mr. Hatch.

MR. JACOBS: If the Examiner will notice, we did, after we received Mr. Irby's letter, we did change our testimony with regard to water in the area, fresh water.

MR. NUTTER: Yes, sir. If there is nothing further in Case 3547, we will take the case under advisement and recess the hearing until 1:15.

(Recess taken)

dearnley-meier

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PAGE 28

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

I, JERRY POTTS, Notary Public, 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.

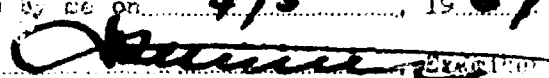
In Witness whereof, I have affixed my hand and notarial seal this 15th day of May, 1967.

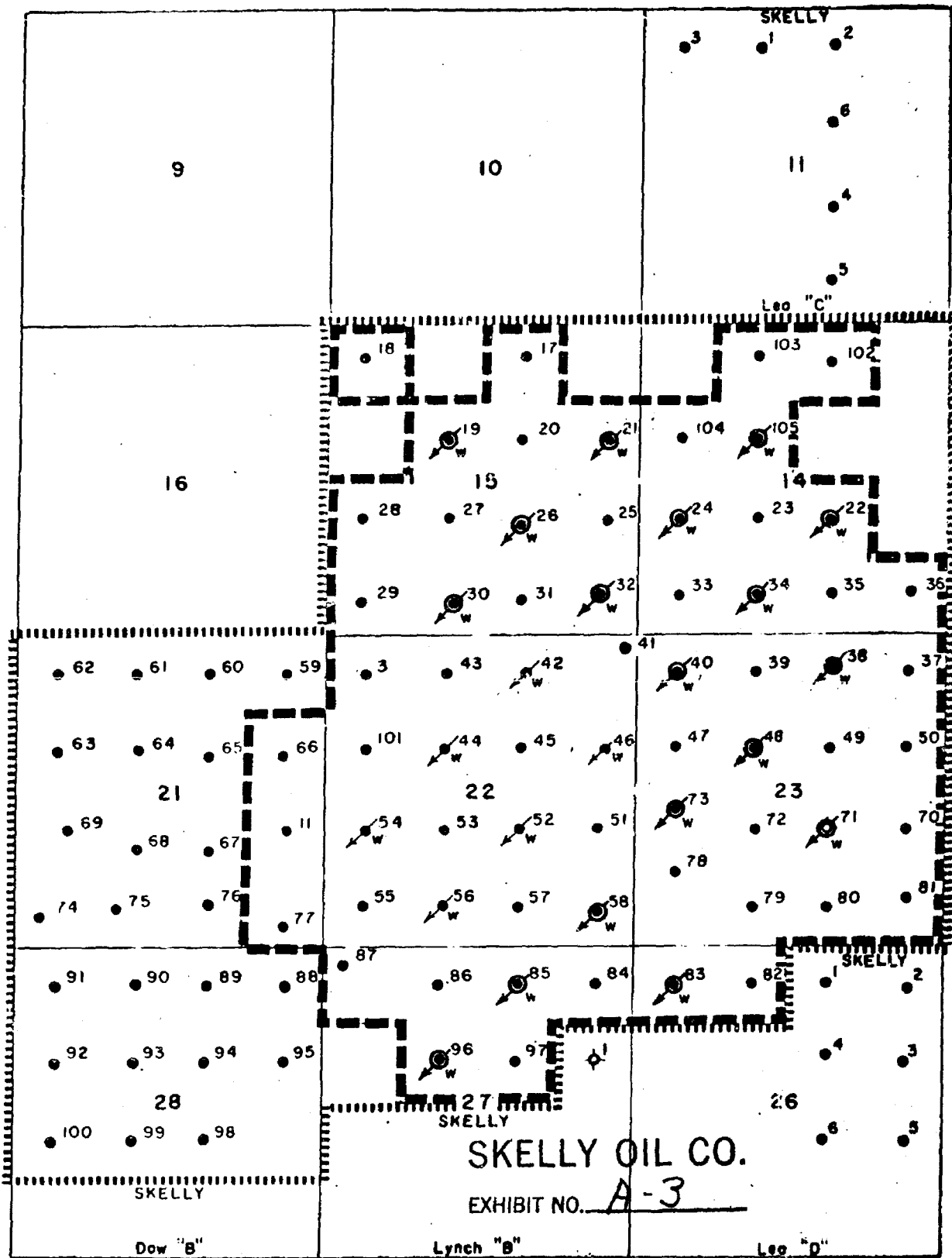

Notary Public

My Commission Expires:

7-10-70

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3542 heard by me on 4/5, 1967


New Mexico Oil Conservation Commission

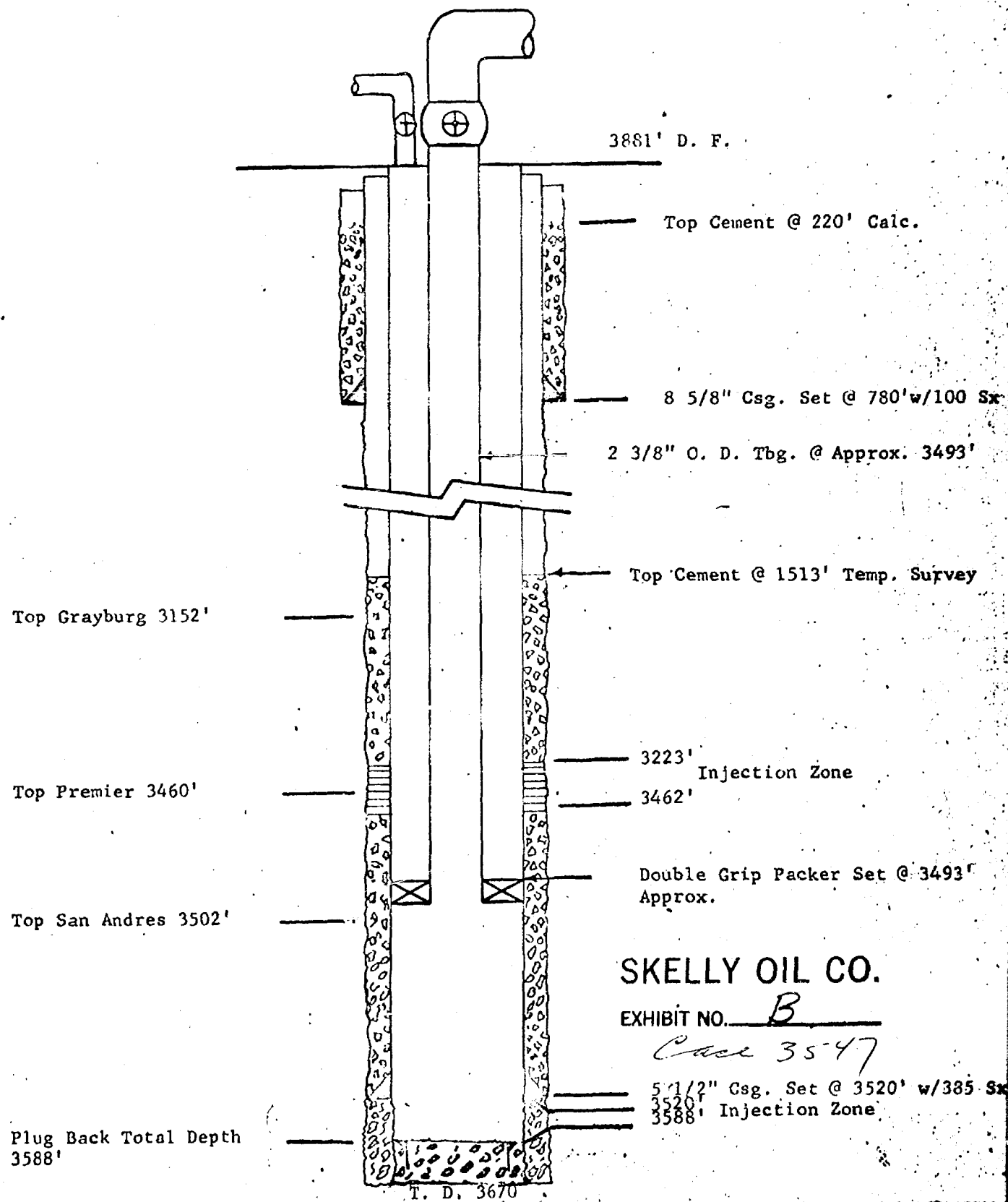


SKELLY OIL COMPANY
 SKELLY UNIT
 EDDY COUNTY, NEW MEXICO
 TOWNSHIP 17-S, RANGE 31-E



- LEGEND
- GRAYBURG-SAN ANDRES OIL WELL
 - ⊕ DRY HOLE
 - SKELLY UNIT
 - PROPOSED PROJECT AREA
 - W WATER INJECTION WELL
 - W PROPOSED INJECTION WELL

SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 19
 1980' FNL 1960' FWL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL

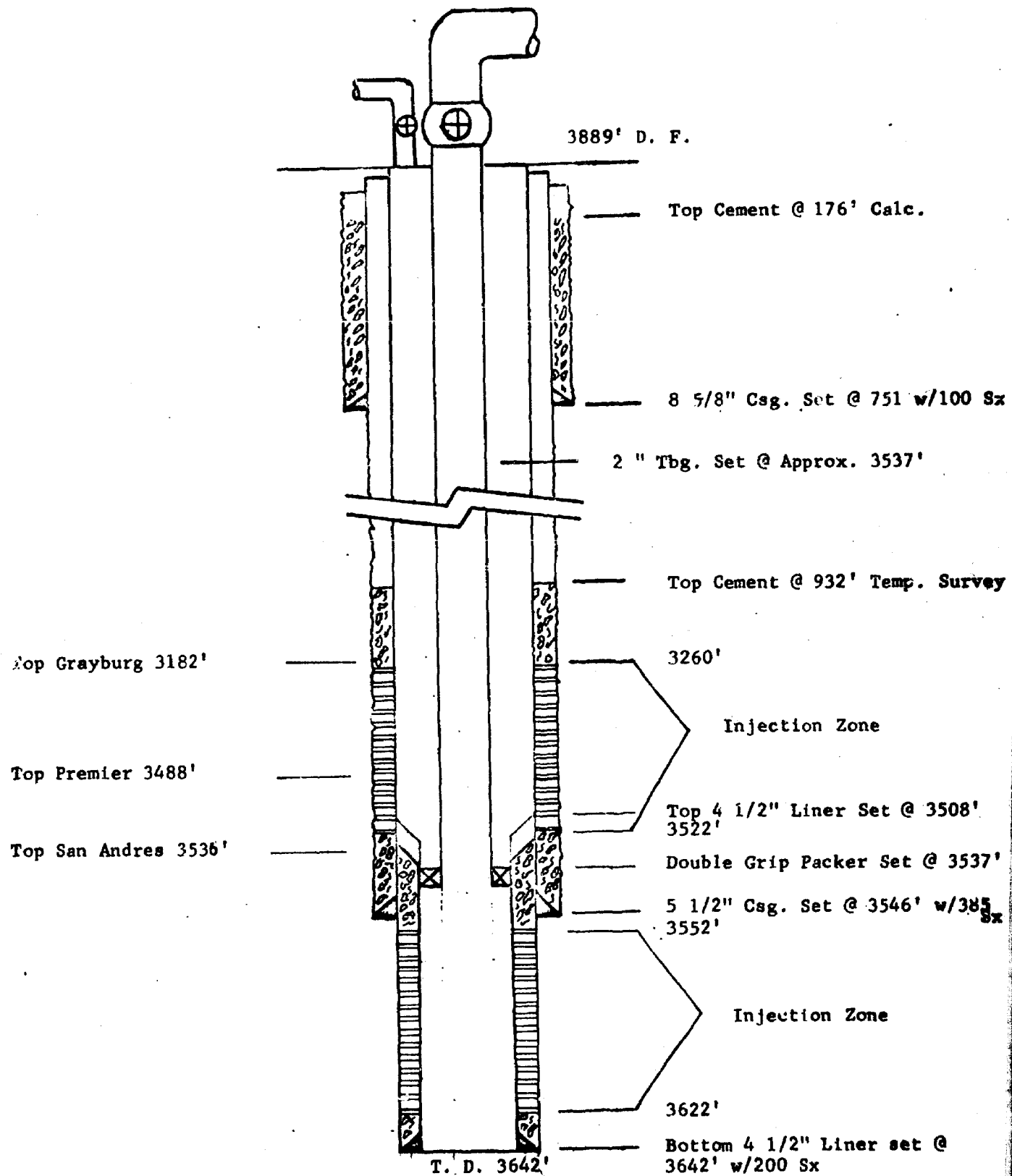


SKELLY OIL CO.

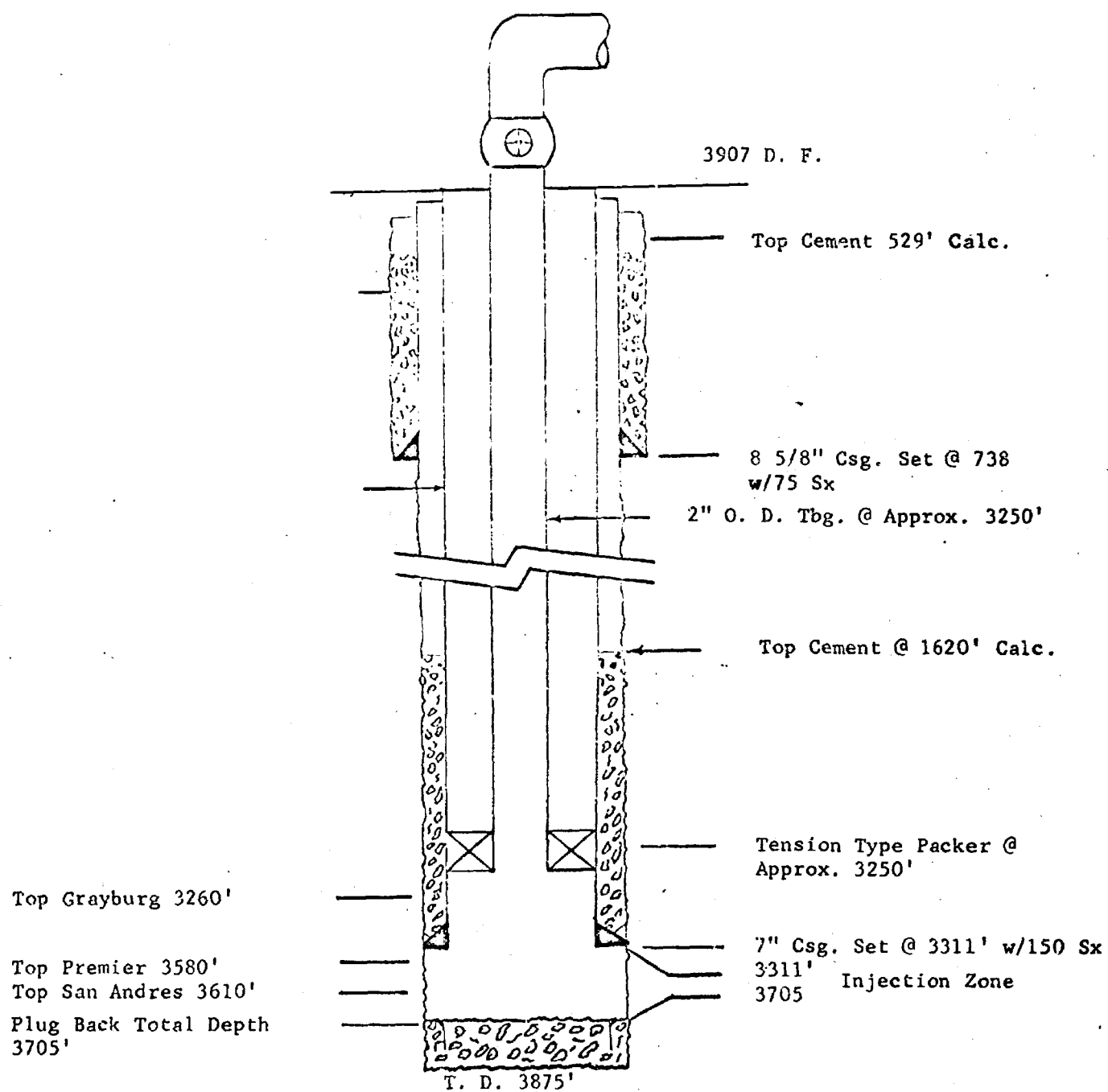
EXHIBIT NO. B

Case 3547

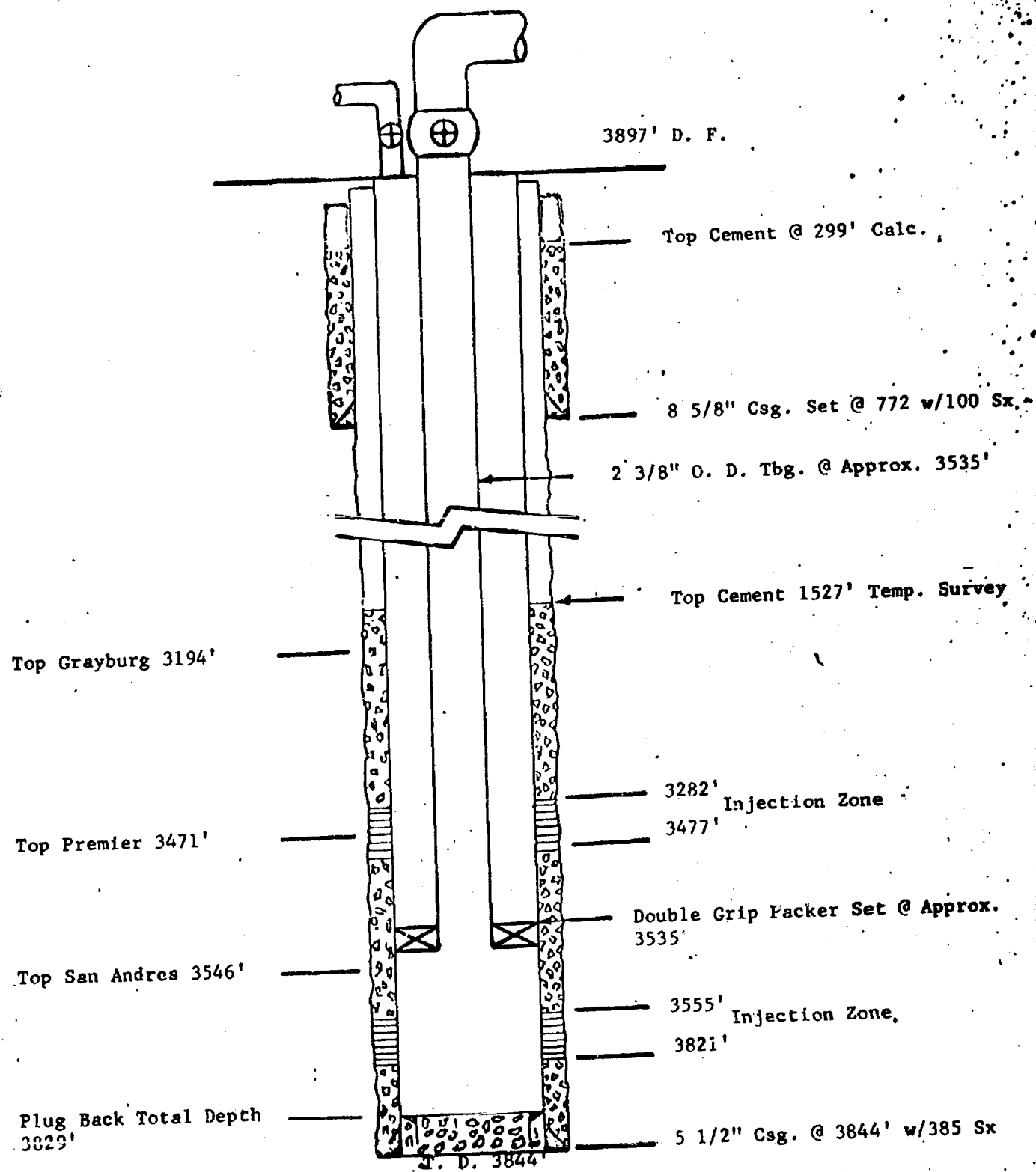
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 SKELLY UNIT WELL NO. 21
 1980' FNL 660' FEL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



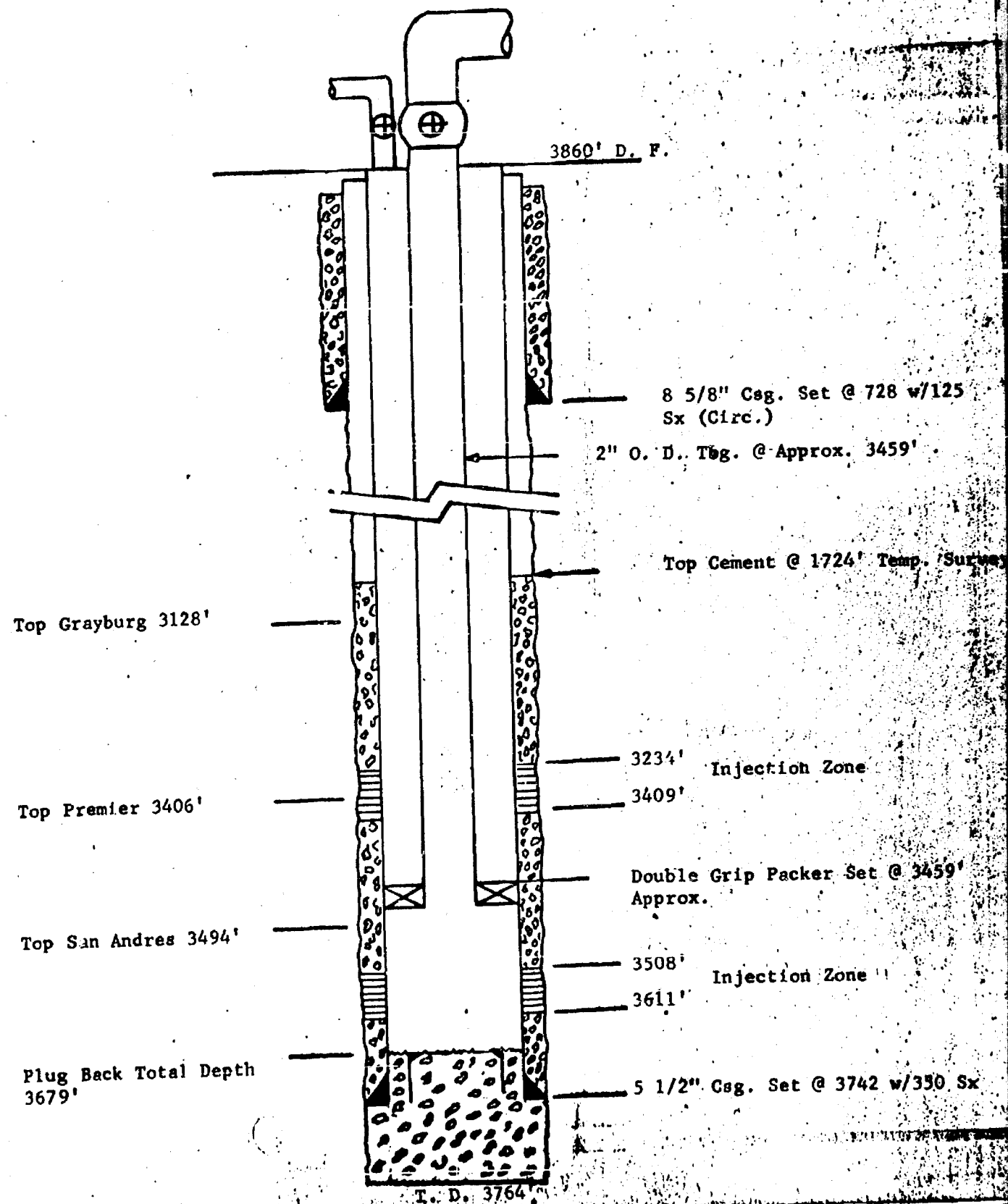
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 1980' FEL 1980' FSL Section 14, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



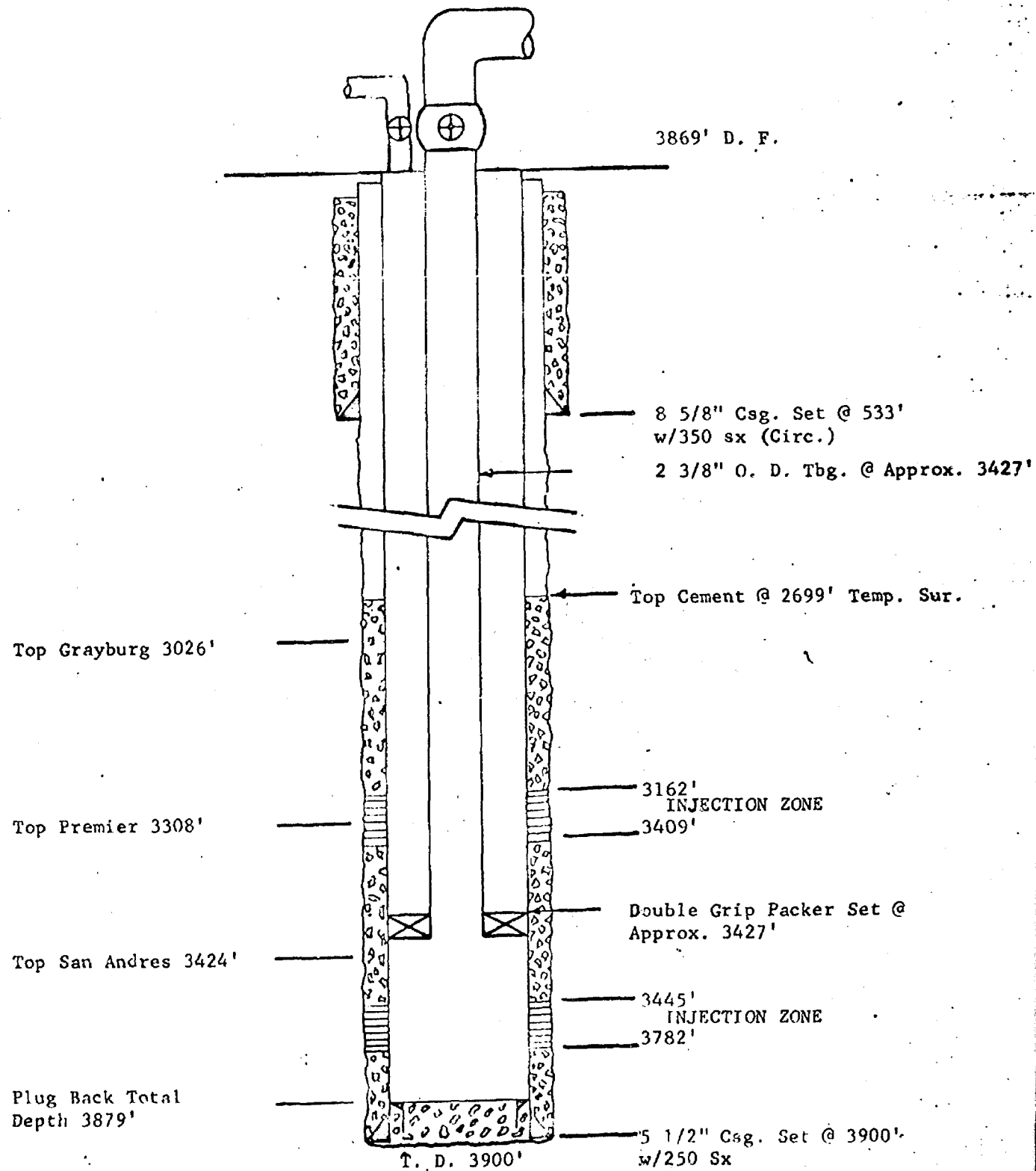
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 GRAYBURG JACKSON INJECTION WELL



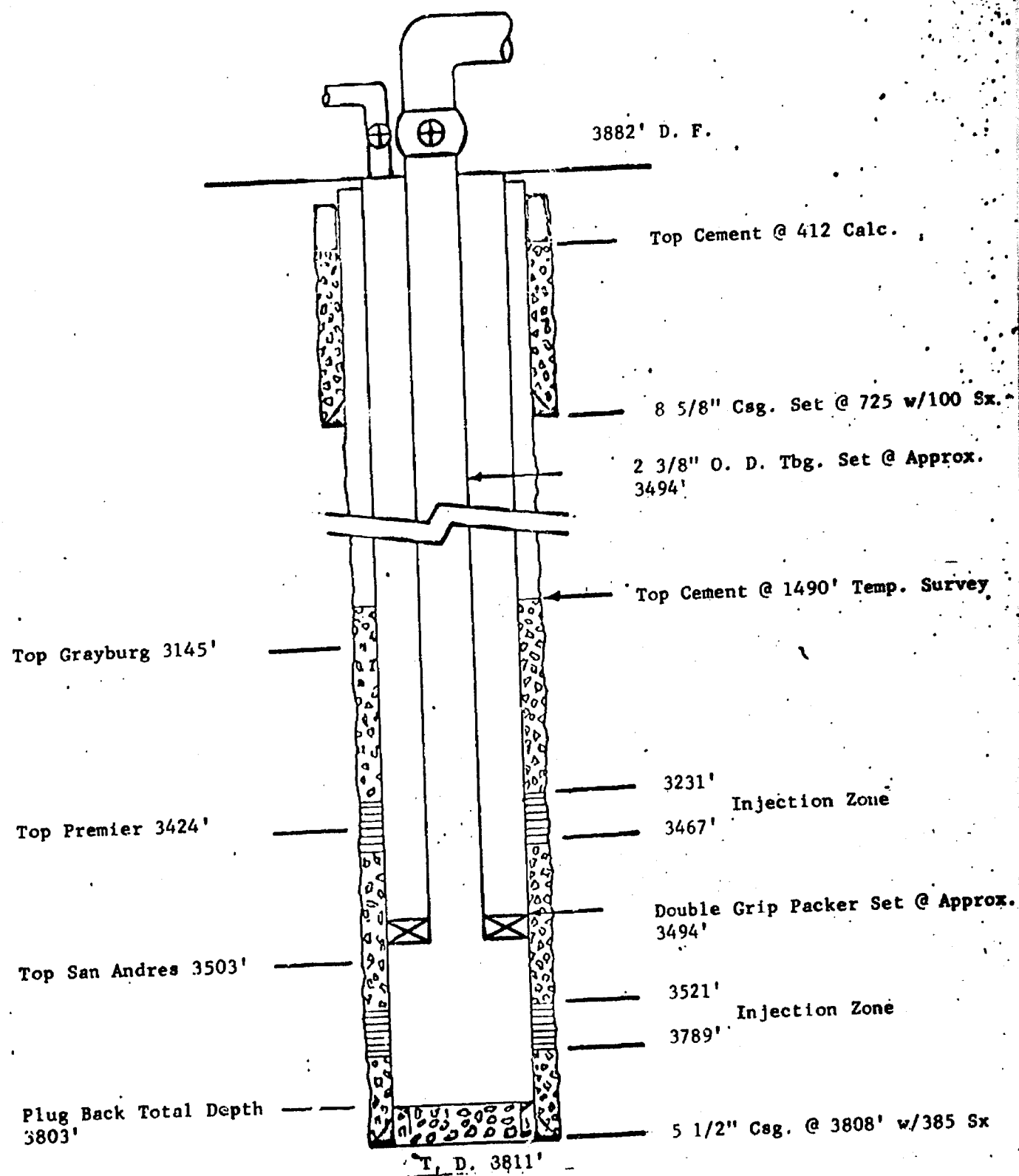
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 1880' FSL 1980' FEL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



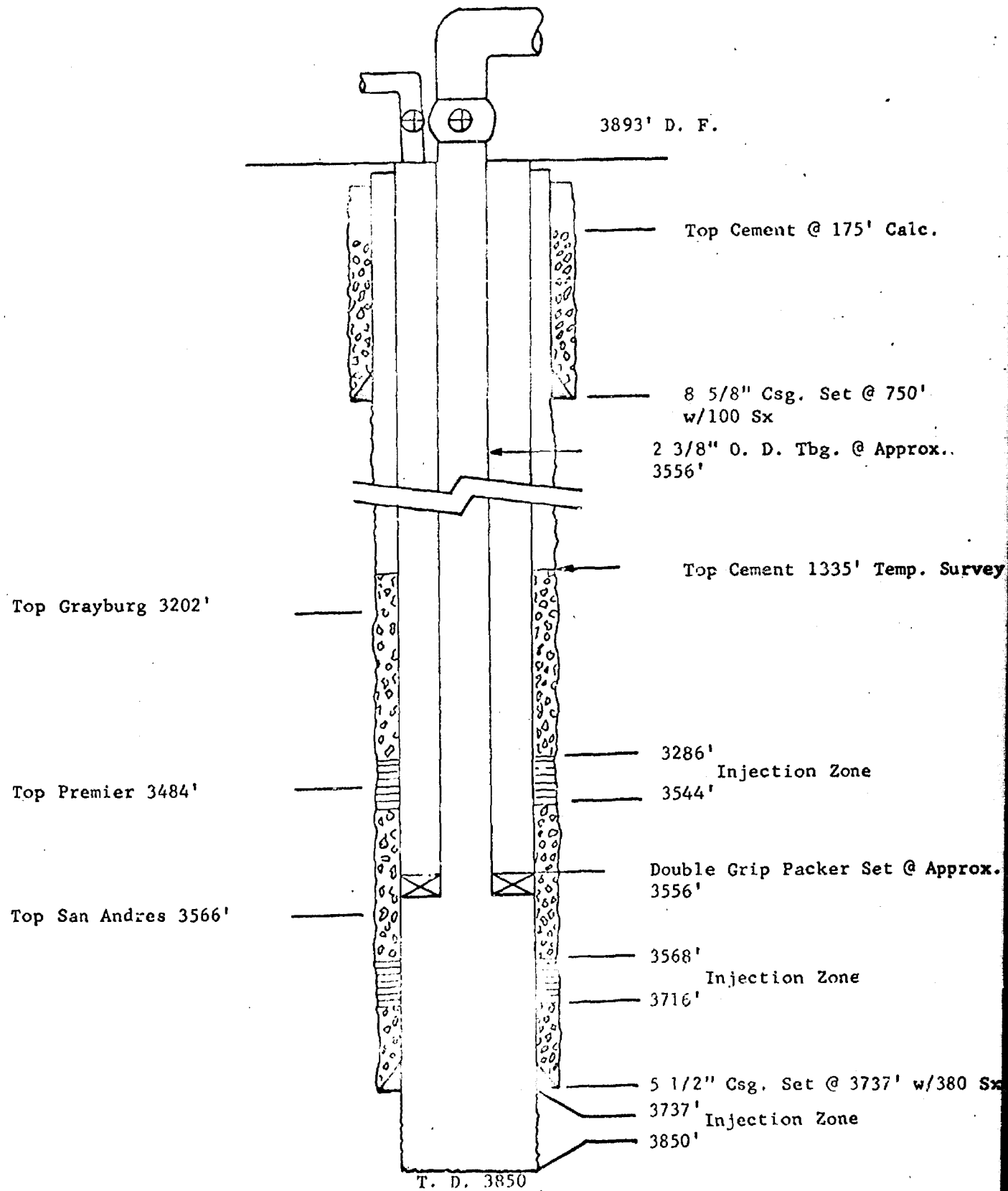
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 650' FSL 2087 FWL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



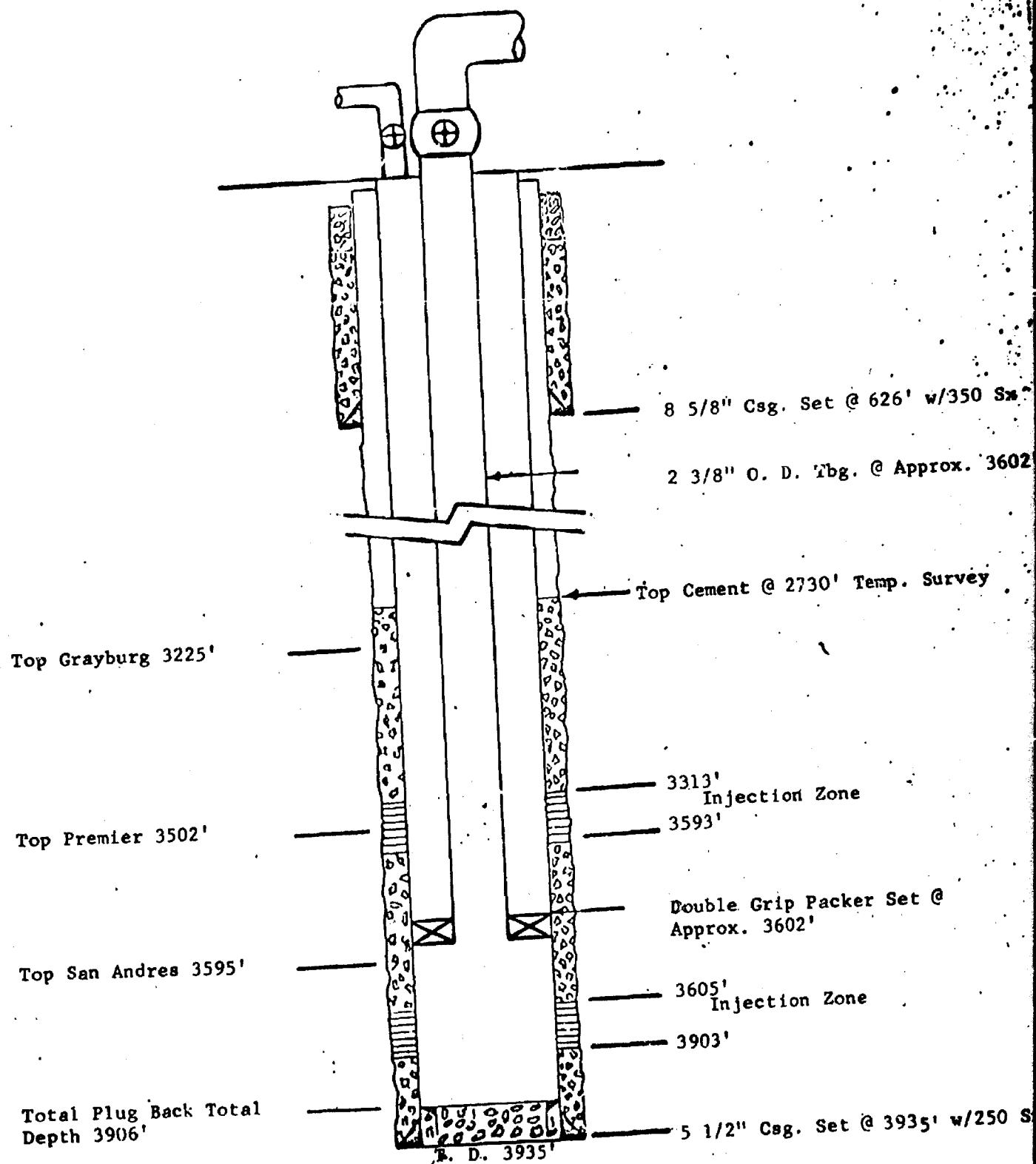
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 660' FSL 660' FEL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



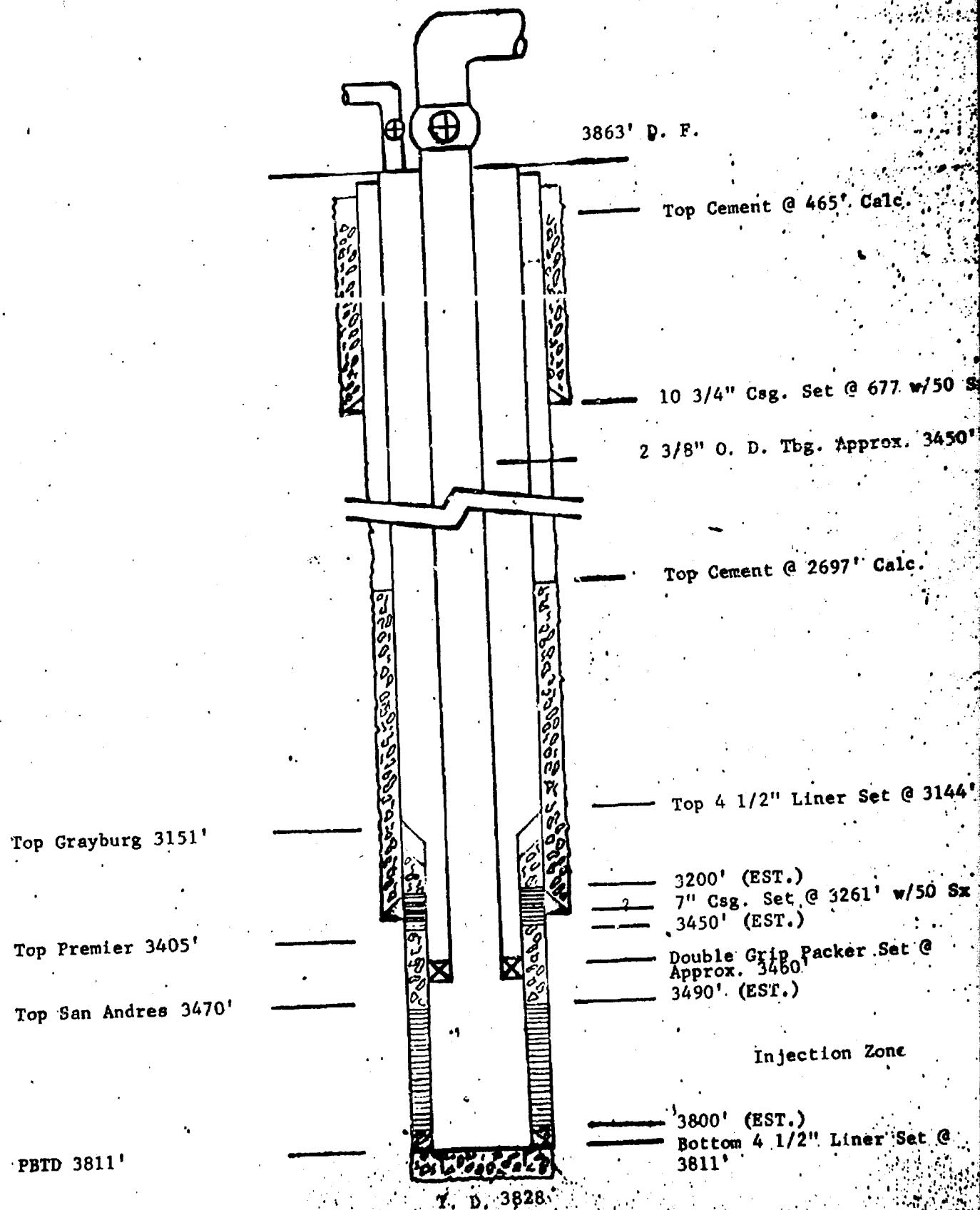
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 660' FSL & 1980' FWL Section 14, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



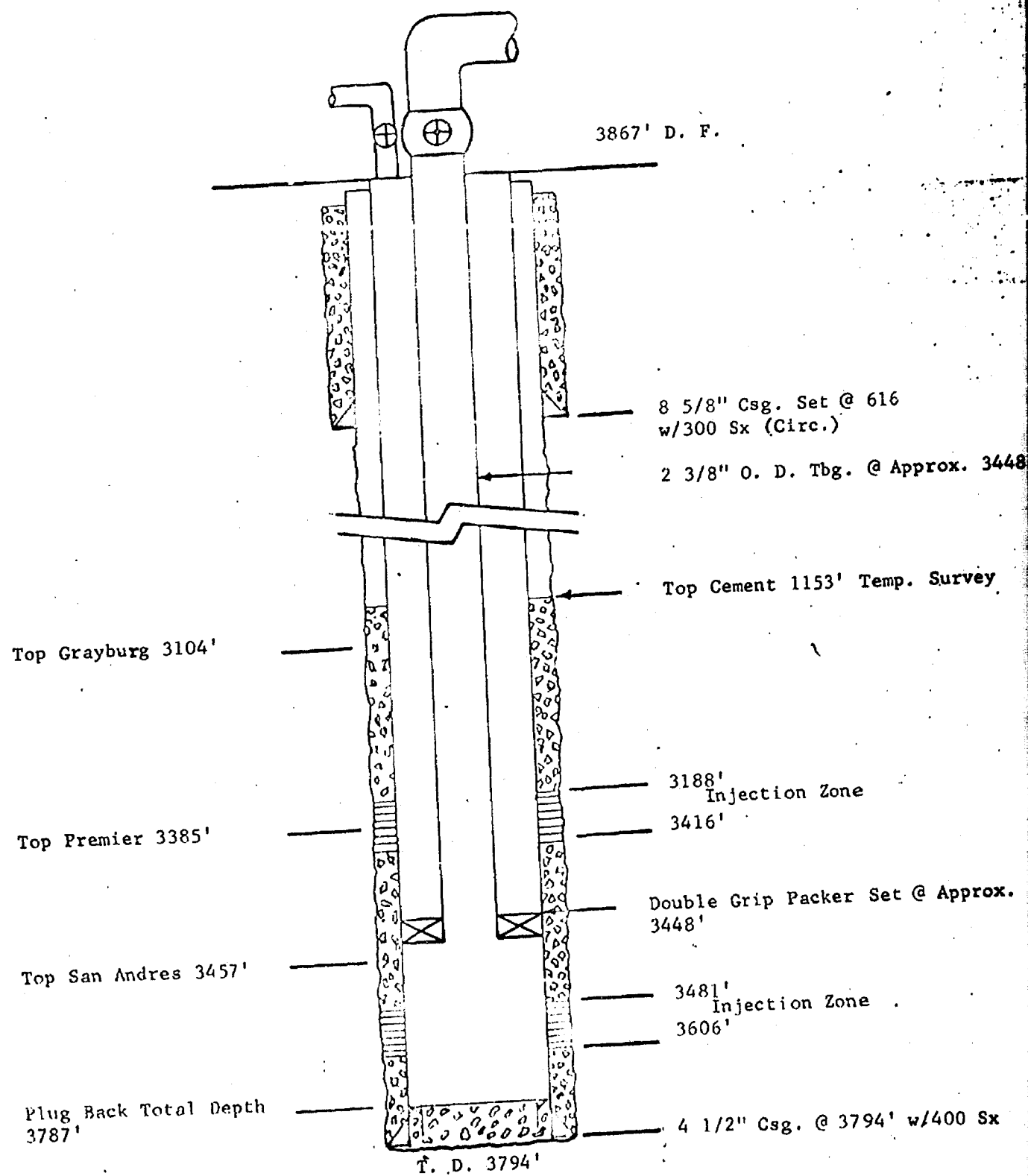
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 560' FNL 1980' FEL Section 23, T 17 S. R 31 E
 GRAYBURG JACKSON INJECTION WELL



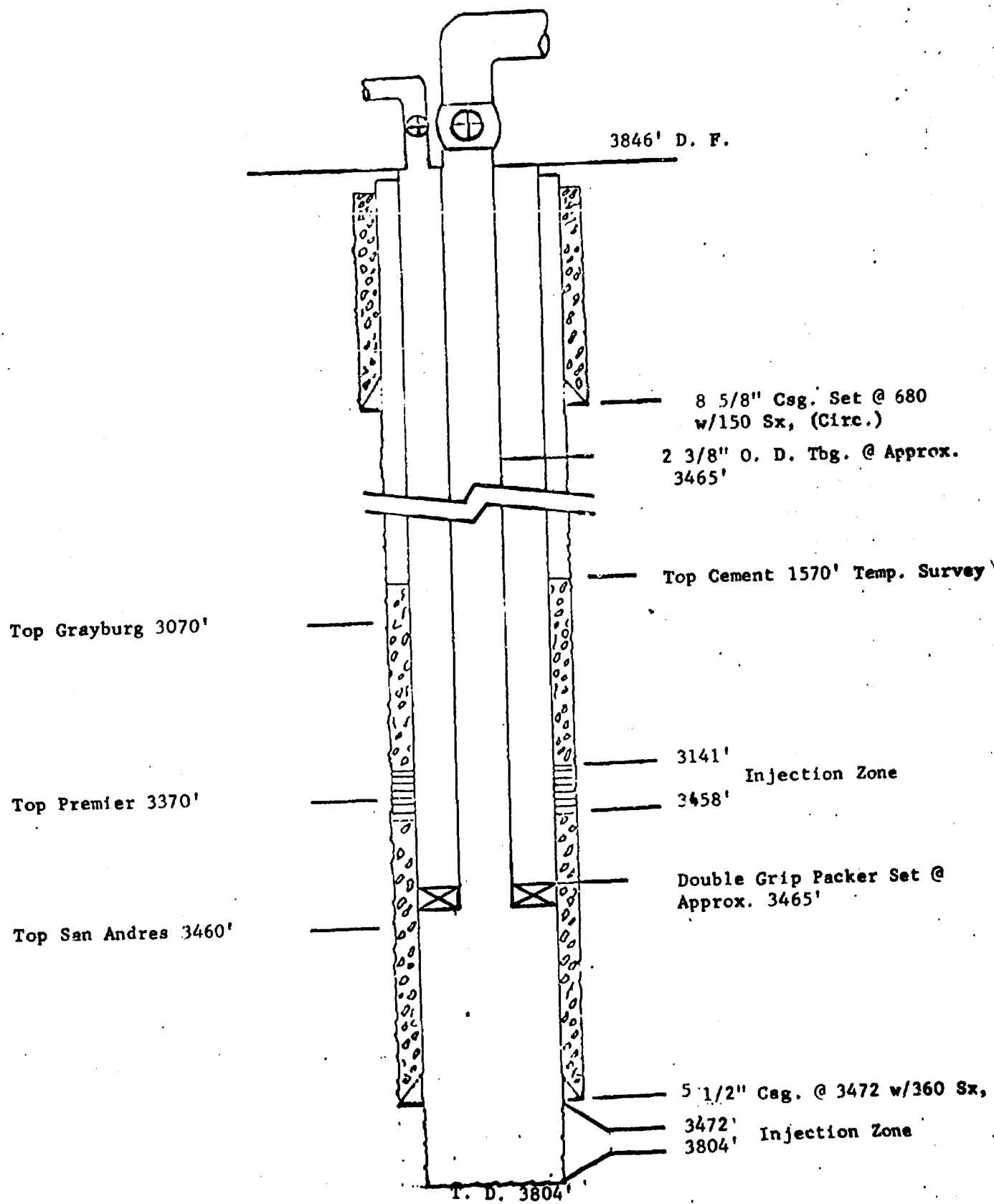
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 GRAYBURG JACKSON INJECTION WELL



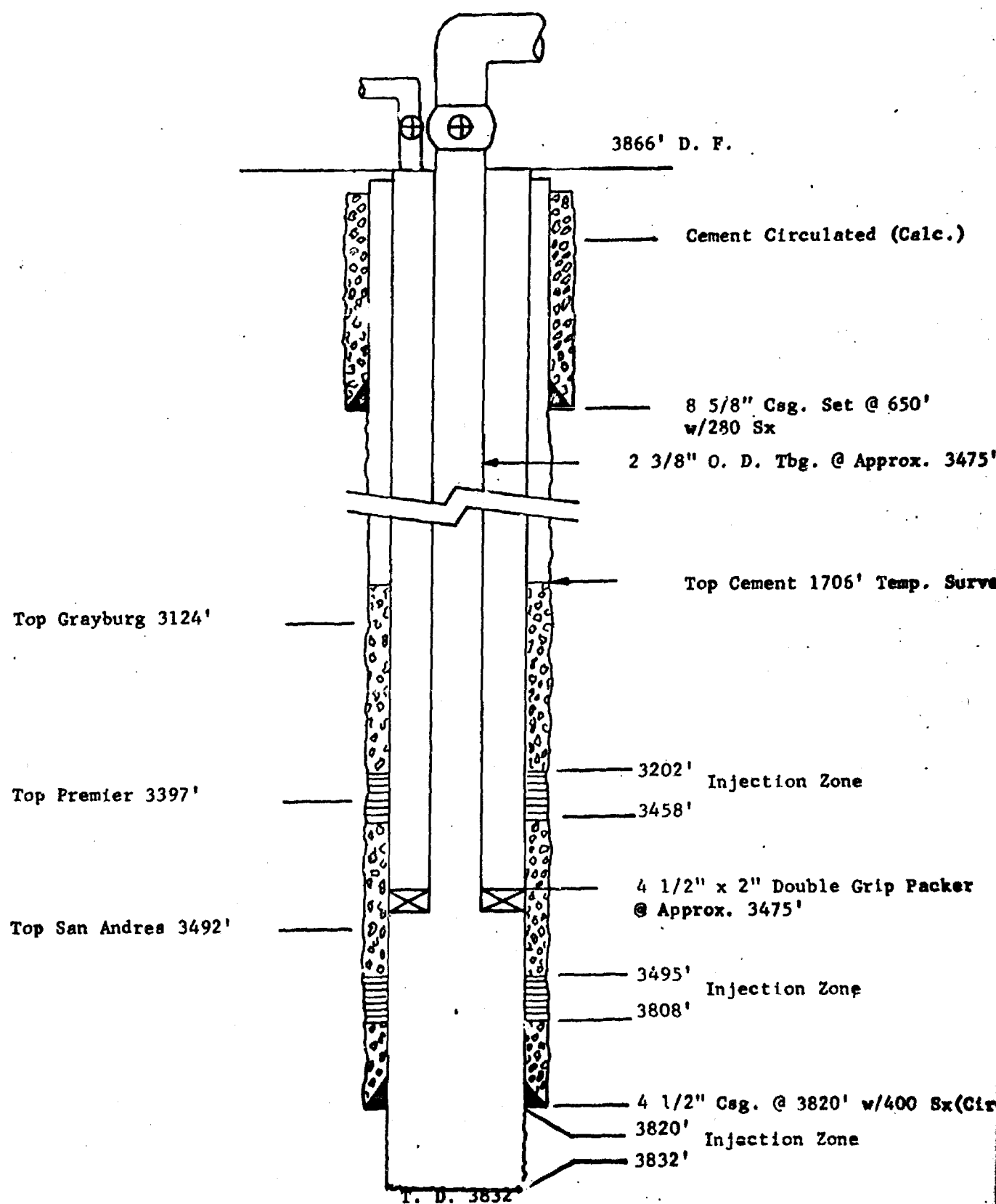
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 GRAYBURG JACKSON INJECTION WELL



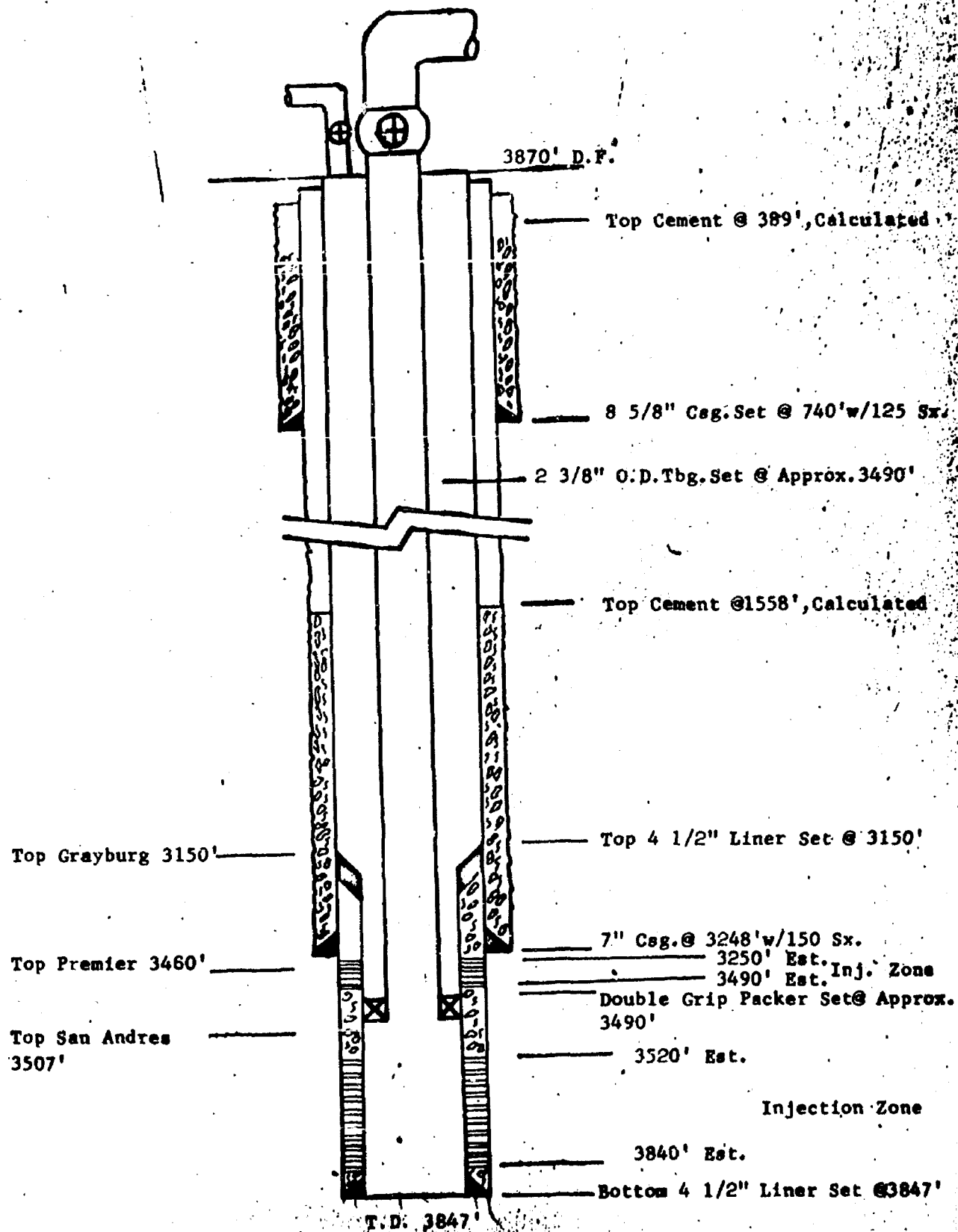
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 GRAYBURG JACKSON INJECTION WELL



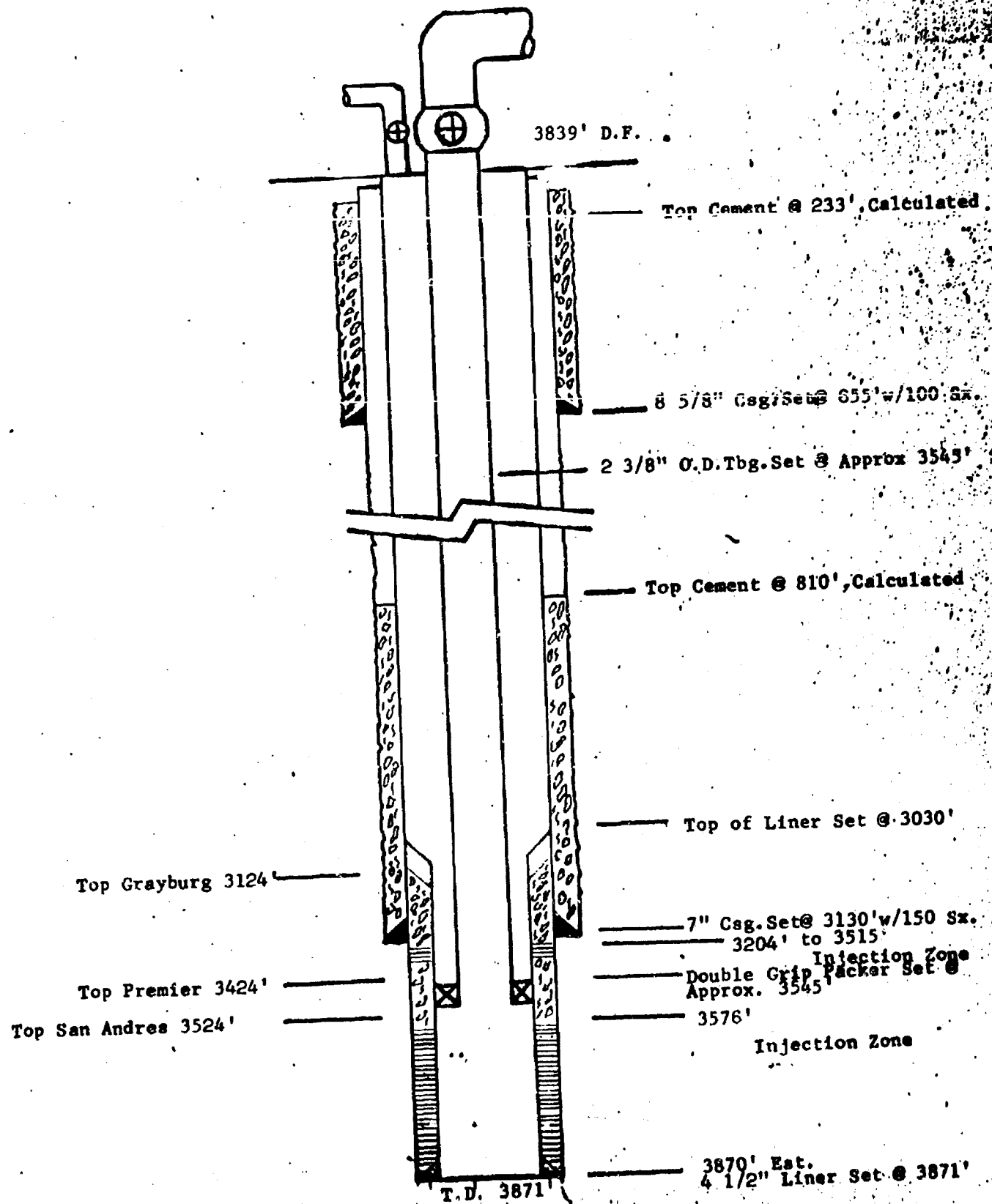
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 GRAYBURG JACKSON INJECTION WELL



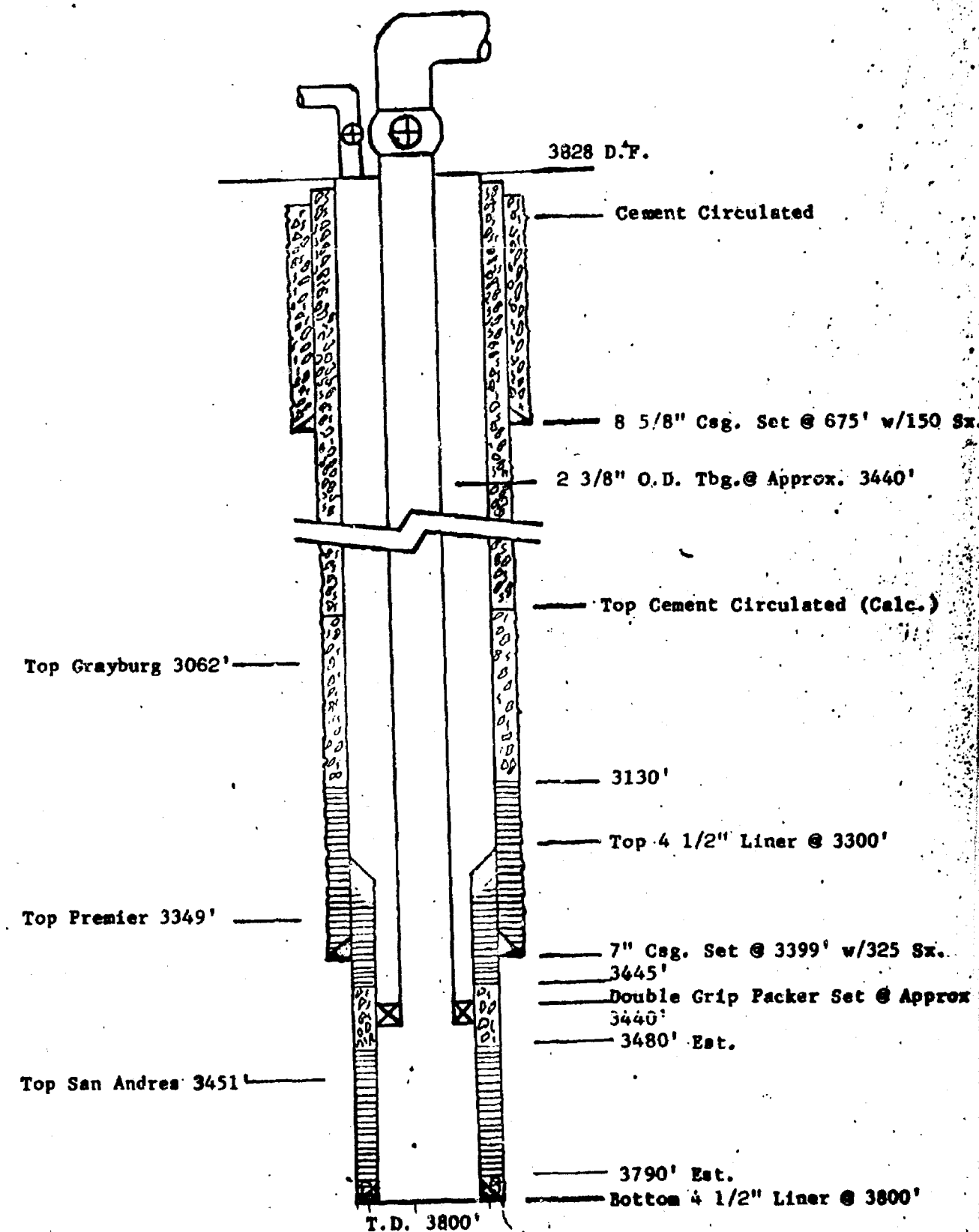
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 GRAYBURG JACKSON INJECTION WELL



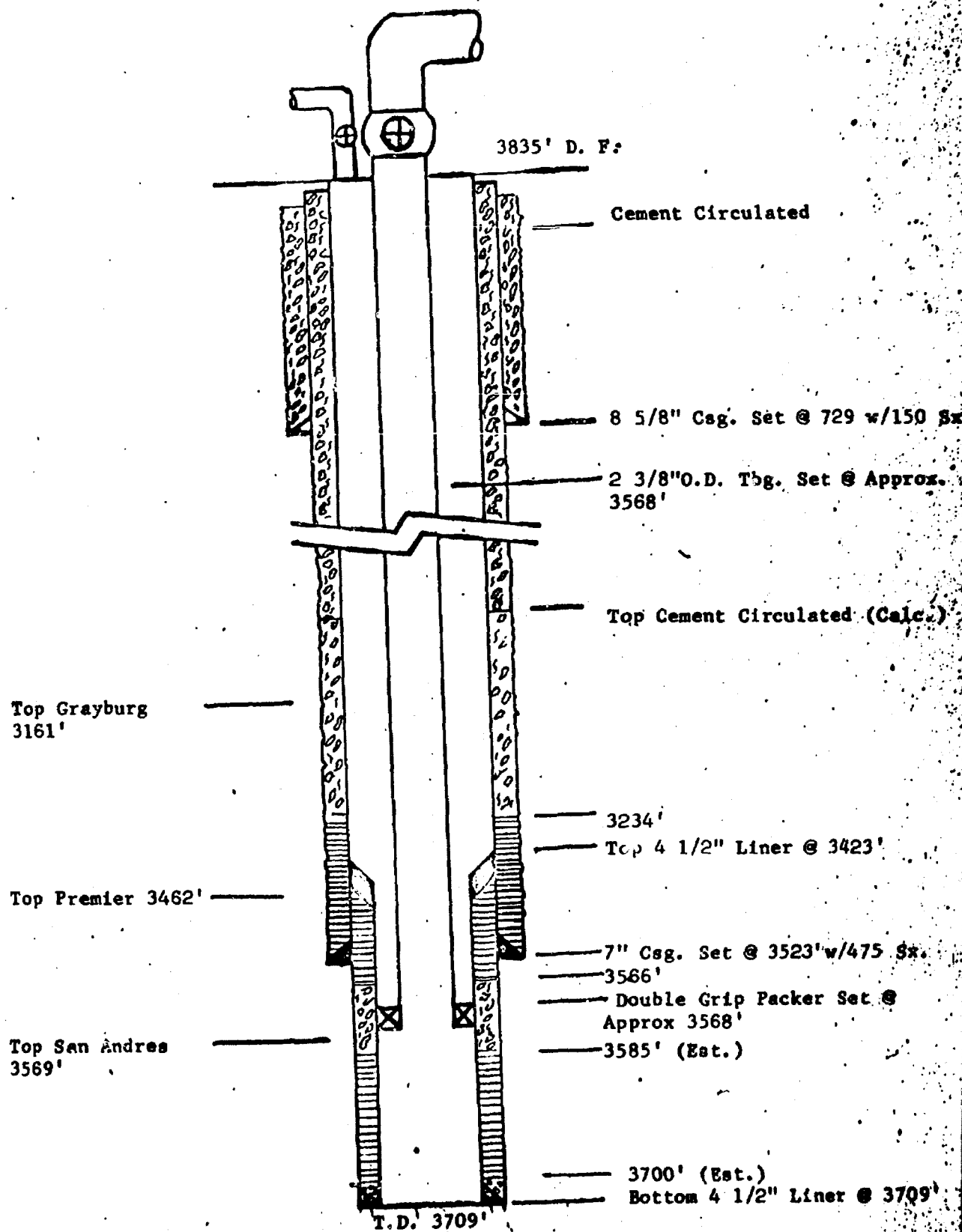
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 GRAYBURG SAN ANDRES INJECTION WELL



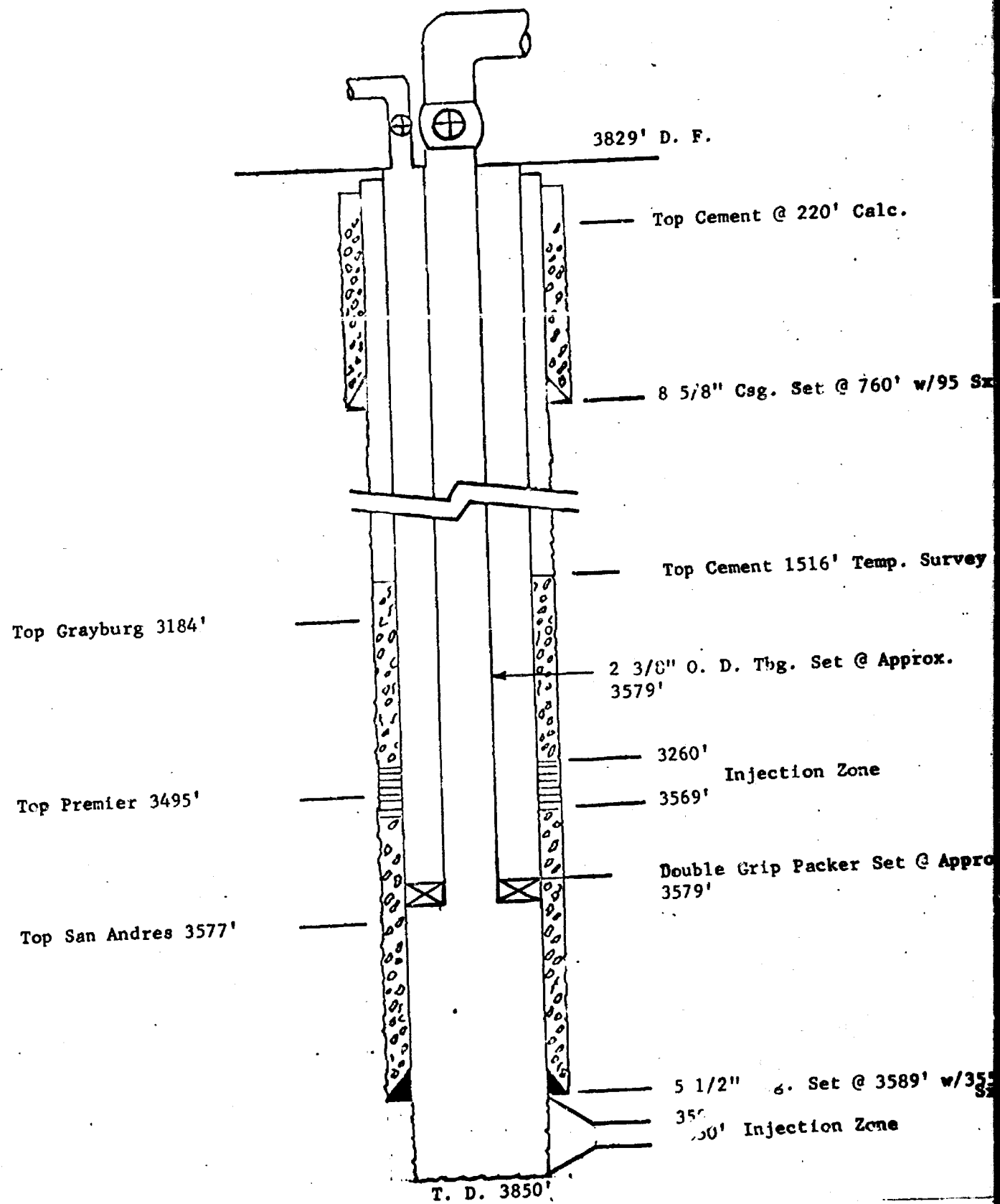
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 GRAYBURG JACKSON INJECTION WELL



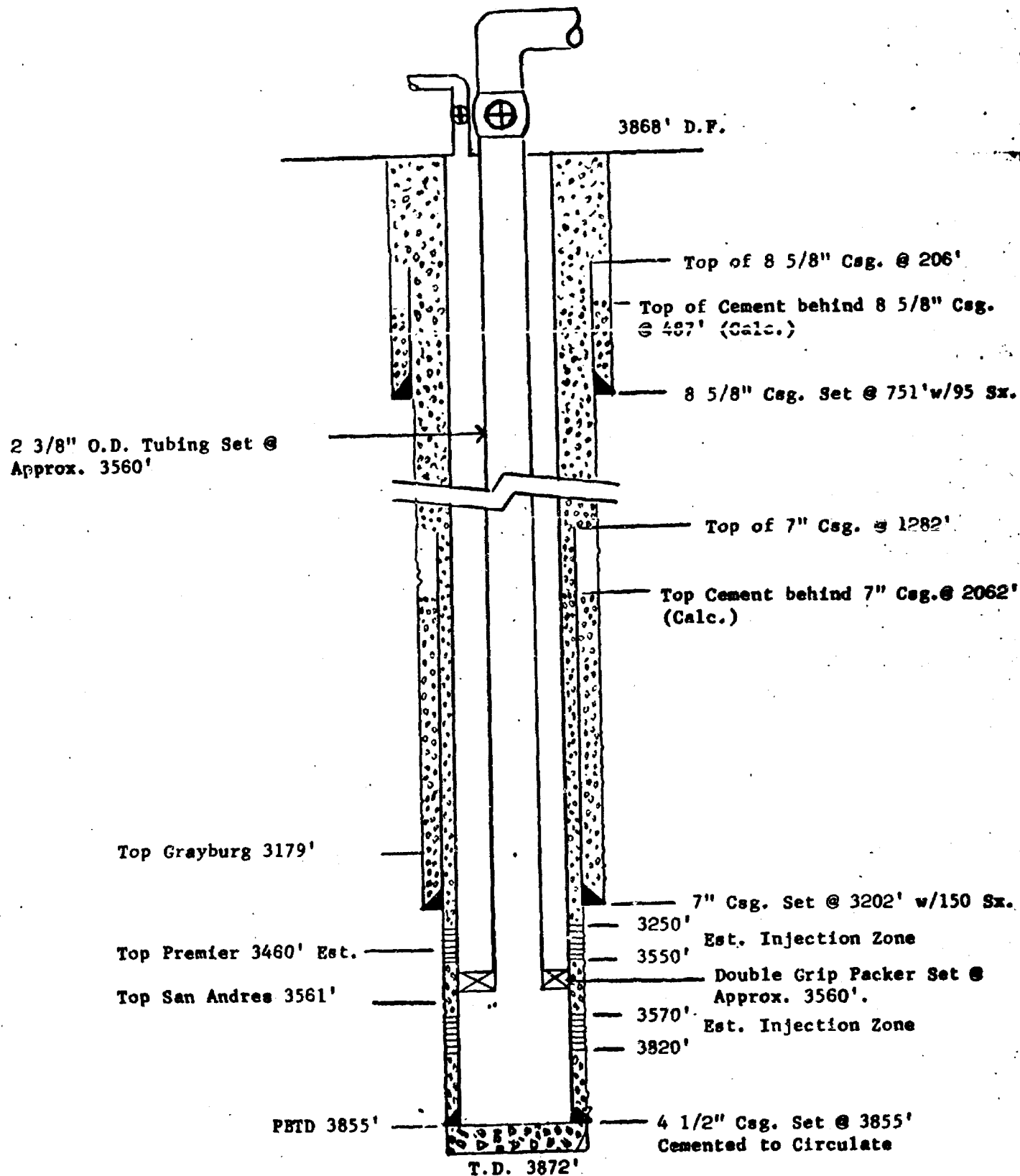
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 GRAYBURG JACKSON INJECTION WELL



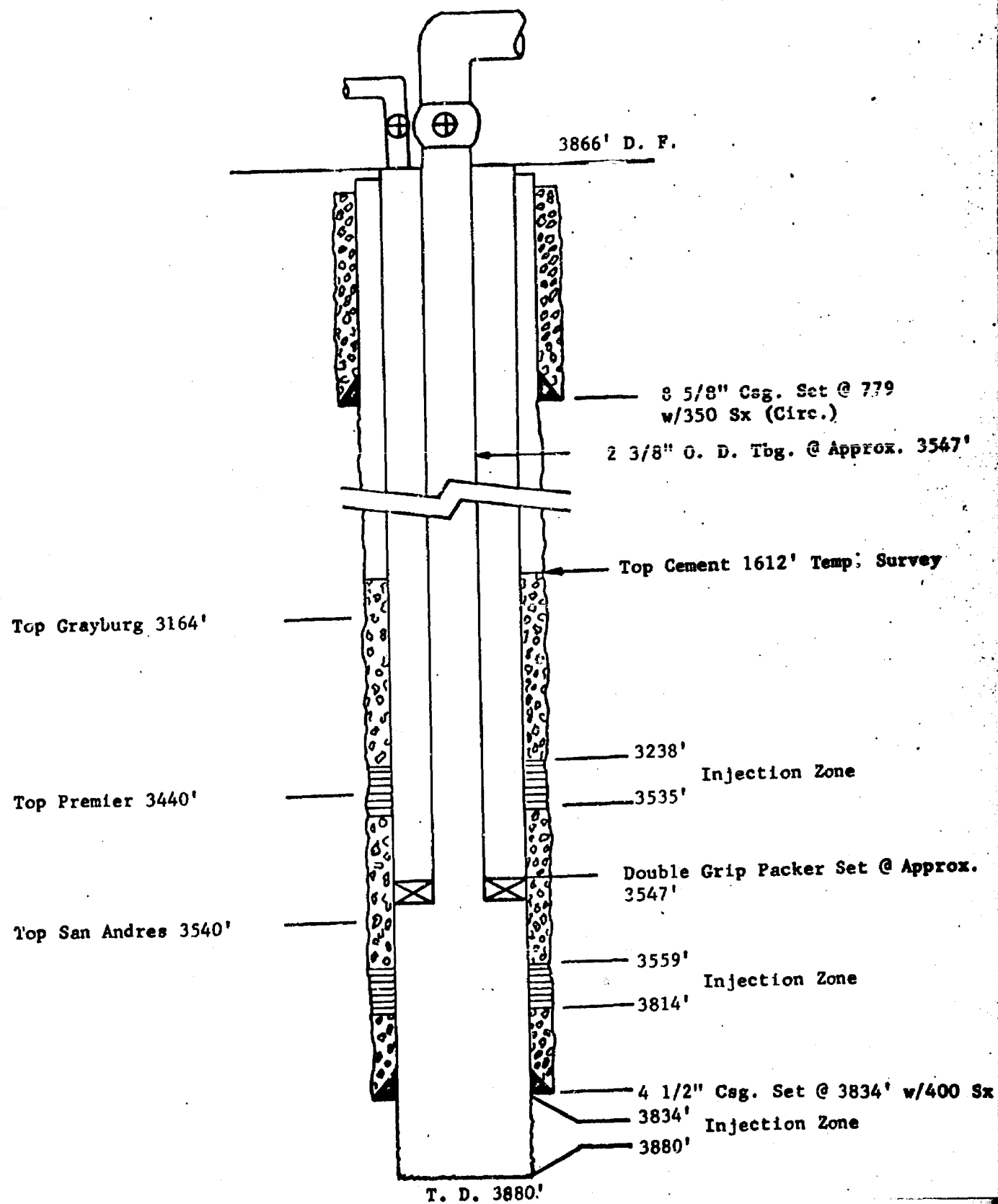
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 660' FEL 570' FSL Section 22, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



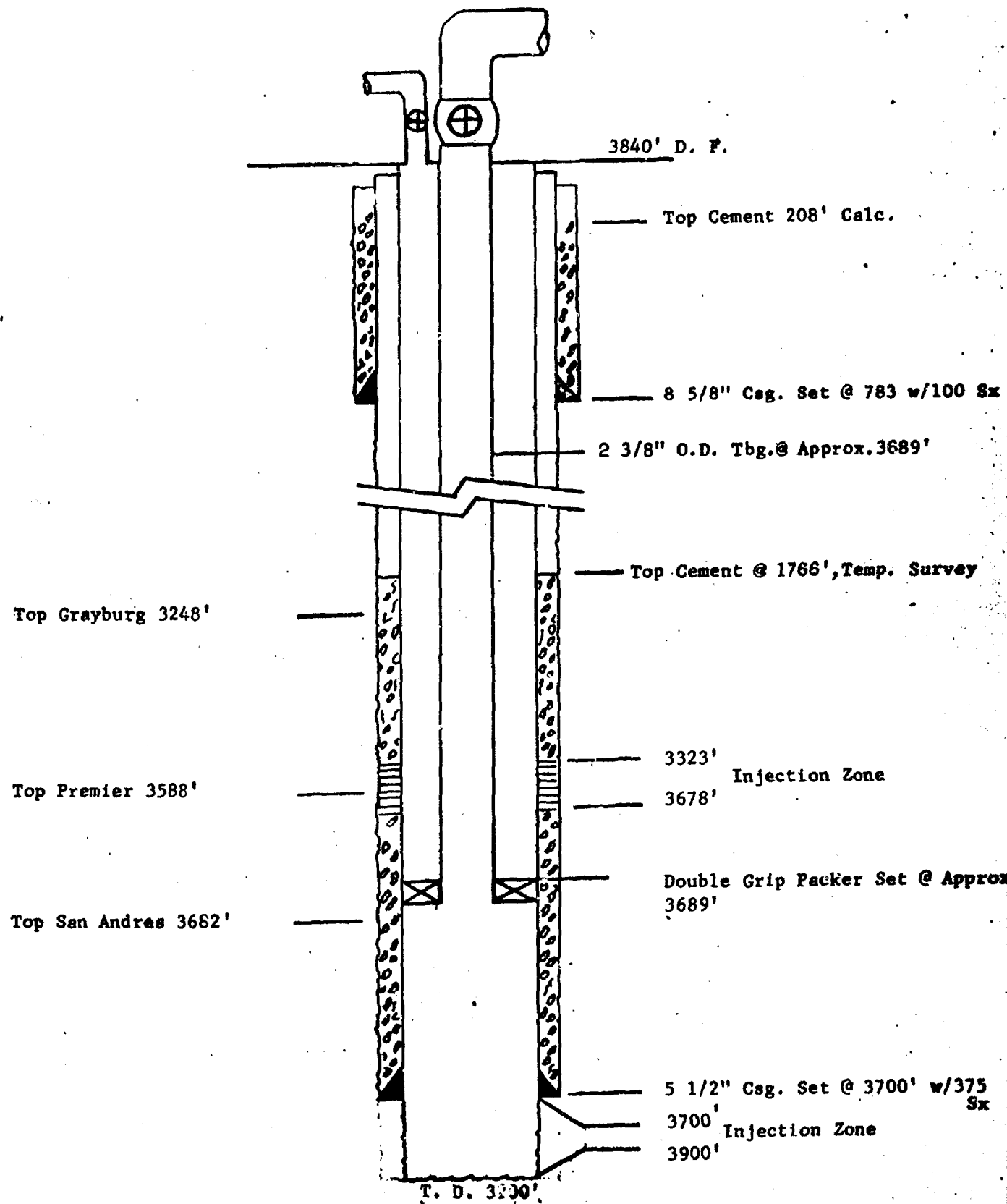
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 GRAYBURG JACKSON INJECTION WELL



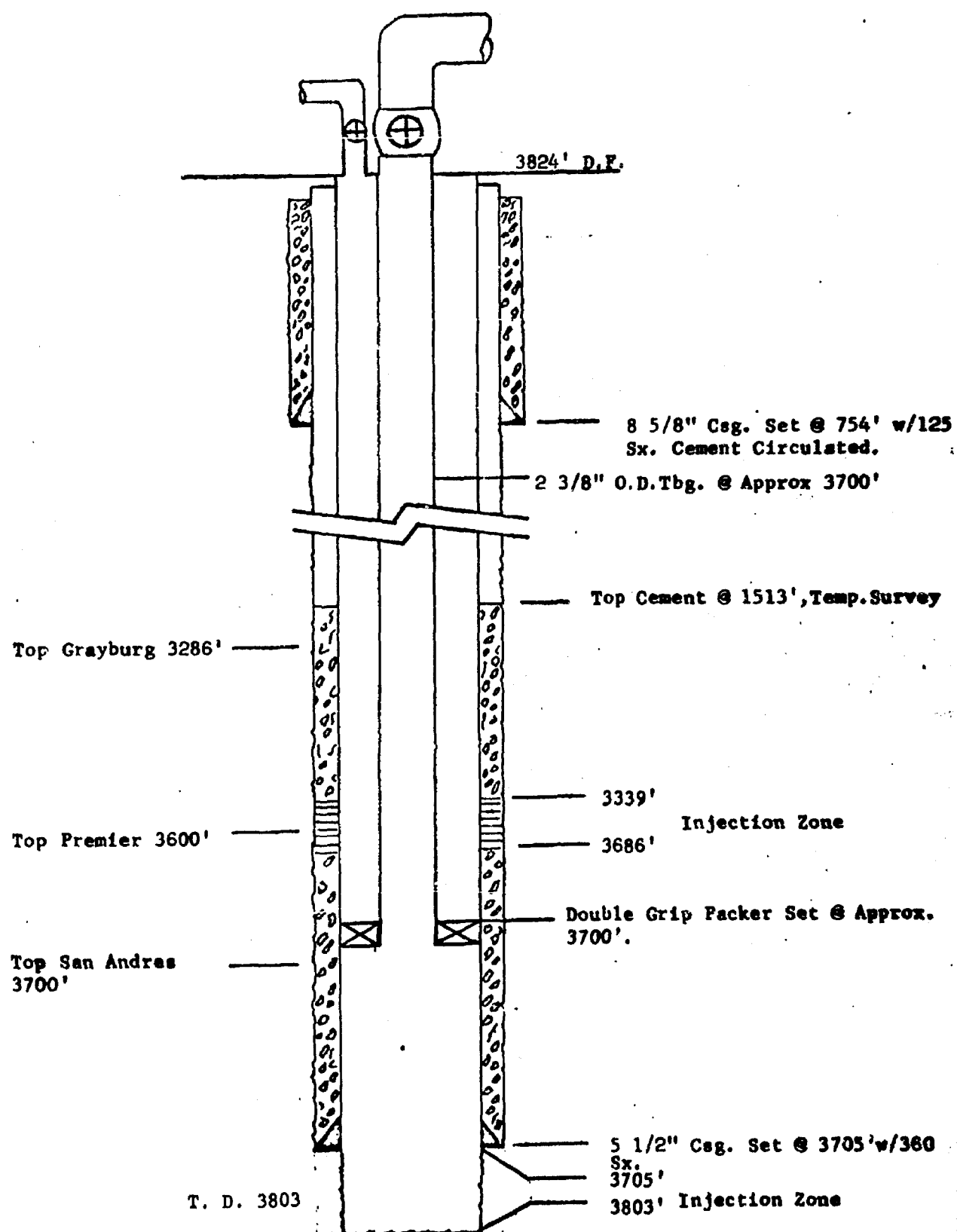
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 GRAYBURG JACKSON INJECTION WELL



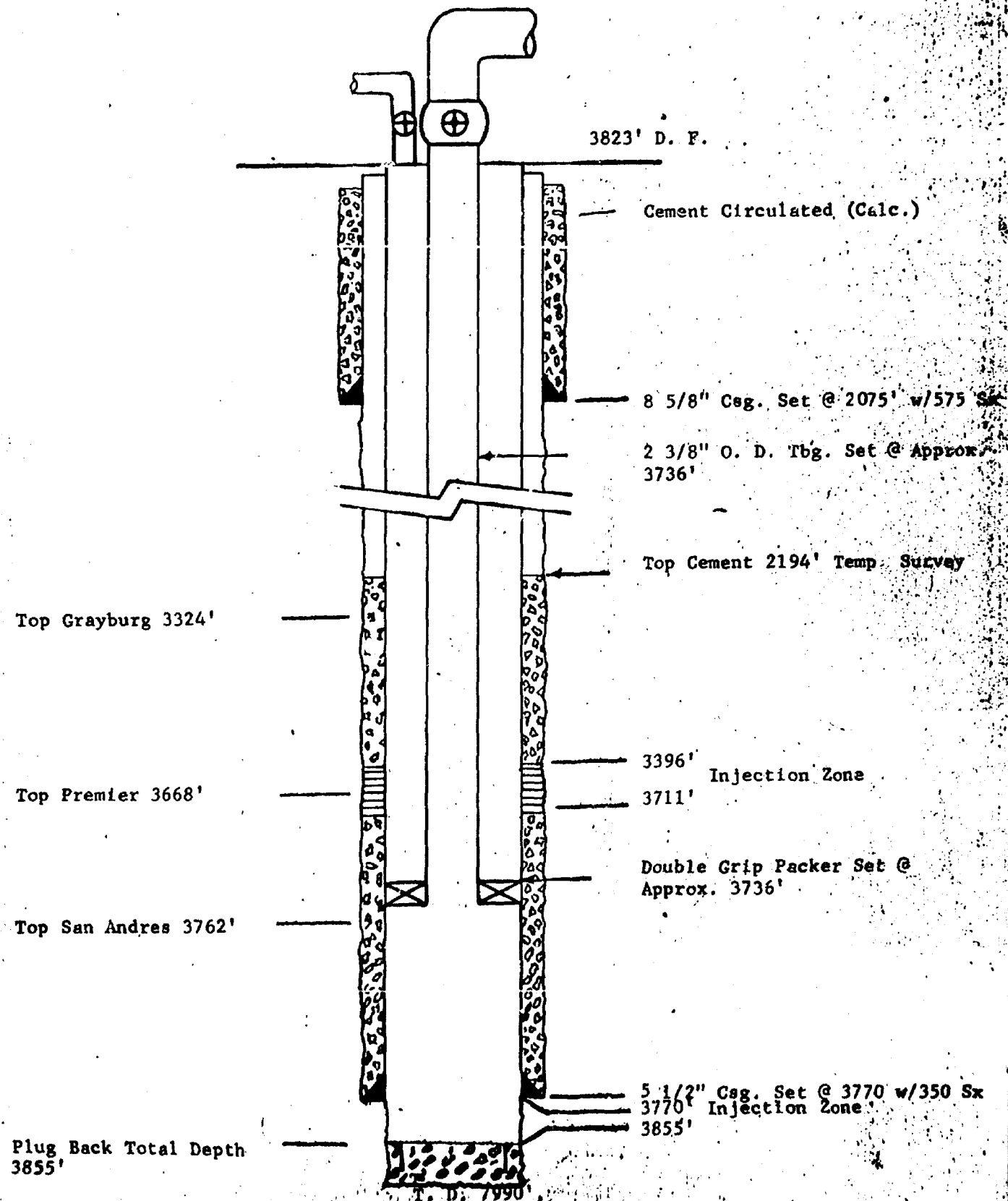
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 GRAYBURG JACKSON INJECTION WELL



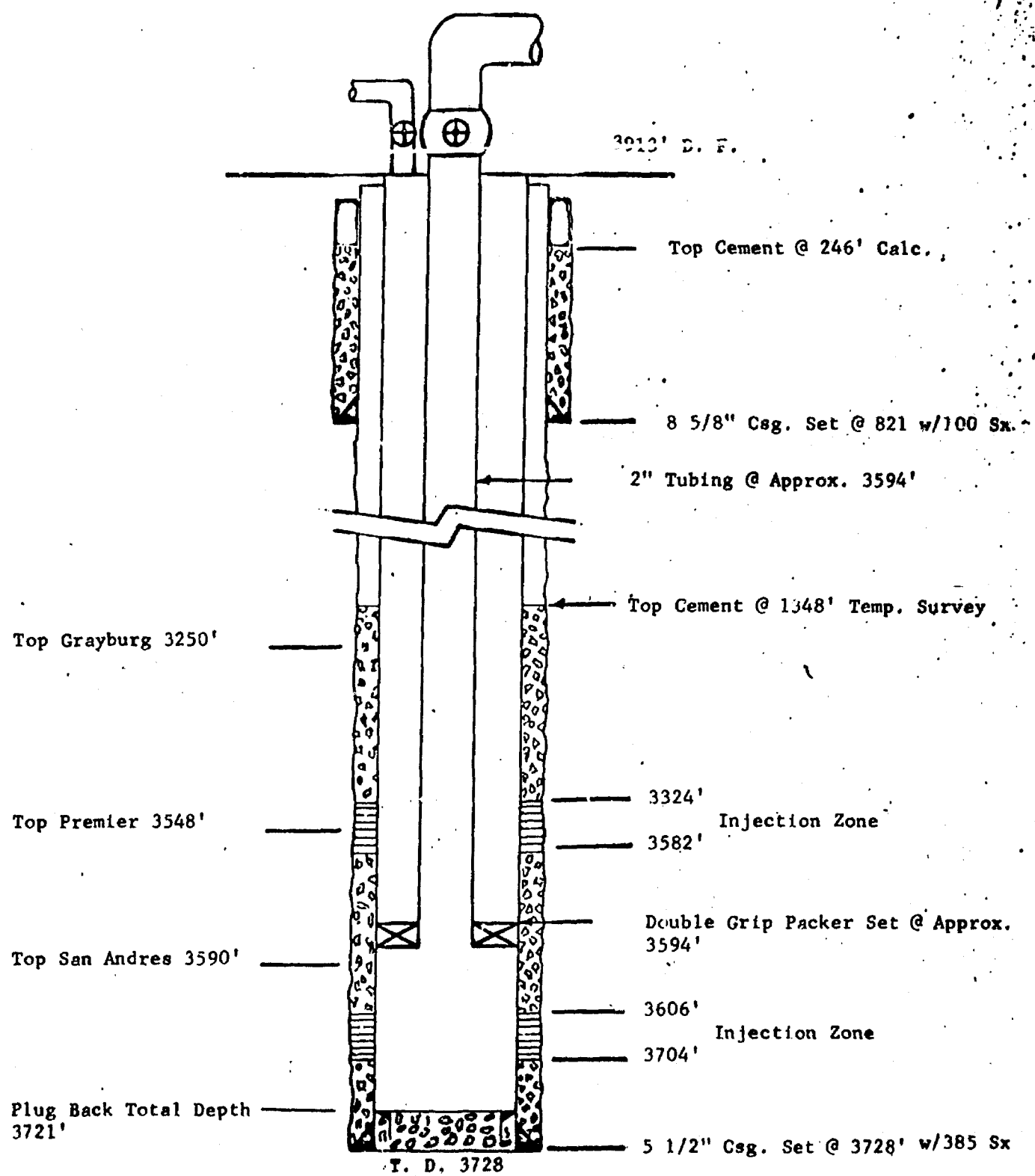
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 85
 660' FNL 1980' FEL, Section 27, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 96
 1980' FNL 1980' FWL Section 27, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 105
 1980' FNL 1980' FWL Section 14, T 17 S, R 3 E
 GRAYBURG JACKSON INJECTION WELL



SKELLY UNIT
EDDY COUNTY, NEW MEXICO

Sheet 1 of 2

SKELLY UNIT
Well No.

Former Lease and Well No.

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Dow "A" No. 3
Lynch "A" No. 3
Lynch "A" No. 6
Dow "B" No. 20
Dow "B" No. 16
Dow "B" No. 17
Dow "B" No. 18
Dow "B" No. 19
Dow "B" No. 8
Dow "B" No. 15
Dow "B" No. 21
Dow "B" No. 13
Dow "B" No. 12
Dow "B" No. 9
Dow "B" No. 10
Dow "B" No. 14
Dow "A" No. 4
Dow "A" No. 5
Dow "A" No. 6
Dow "A" No. 12
Dow "A" No. 9
Lea "A" No. 6
Lea "A" No. 13
Lea "A" No. 12
Dow "A" No. 11
Dow "A" No. 8
Dow "A" No. 10
Dow "A" No. 7
Dow "A" No. 2
Dow "A" No. 14
Dow "A" No. 1
Dow "A" No. 13
Lea "A" No. 2
Lea "A" No. 11
Lea "A" No. 15
Lea "A" No. 8
Lea "A" No. 7
Lea "A" No. 14
Lea "A" No. 4
Lea "A" No. 1
Lynch "A" No. 1
Lynch "A" No. 15
Lynch "A" No. 17
Lynch "A" No. 13
Lynch "A" No. 5
Lynch "A" No. 16
Lea "A" No. 10
Lea "A" No. 9
Lea "A" No. 3
Lea "A" No. 5
Lynch "A" No. 7
Lynch "A" No. 4
Lynch "A" No. 11
Lynch "A" No. 10
Lynch "A" No. 8
Lynch "A" No. 9
Lynch "A" No. 12
Lynch "A" No. 14
Dow "B" No. 7
Dow "B" No. 5

SKELLY OIL CO.

EXHIBIT NO. C

Case 3547

SKELLY UNIT
EDDY COUNTY, NEW MEXICO

Sheet 2 of 2

SKELLY UNIT
Well No.

Former Lease and Well No.

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Dow "B" No. 2
Dow "B" No. 3
Dow "B" No. 4
Dow "B" No. 6
Dow "B" No. 39
Dow "B" No. 38
Dow "B" No. 27
Dow "B" No. 26
Dow "B" No. 25
Lea "B" No. 1
Lea "B" No. 3
Lea "B" No. 13
Lea "B" No. 14
Dow "B" No. 22
Dow "B" No. 23
Dow "B" No. 24
Dow "B" No. 28
Lea "B" No. 2
Lea "B" No. 7
Lea "B" No. 9
Lea "B" No. 10
Lea "B" No. 6
Lea "B" No. 8
Lynch "B" No. 5
Lynch "B" No. 4
Lynch "B" No. 3
Lynch "B" No. 2
Dow "B" No. 1
Dow "B" No. 30
Dow "B" No. 29
Dow "B" No. 11
Dow "B" No. 31
Dow "B" No. 33
Dow "B" No. 34
Dow "B" No. 35
Lynch "B" No. 6
Lynch "B" No. 7
Dow "B" No. 37
Dow "B" No. 36
Dow "B" No. 32
Lynch "A" No. 2
Lea "B" No. 5
Lea "B" No. 11
Lea "B" No. 4
Lea "B" No. 12

Well No. 1 - Shut In Penn. Gas Well.

Well No's. 2 - 16 Seven Rivers (Fren) Oil Wells.

Well No's. 17 - 105 Grayburg - San Andres Oil Wells or
Water Injection Wells.

LIST OF EXHIBITS

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
A	Area Map
B	Plat of Skelly Properties
C	Table of Well Identification
D	Plat of Project Area
E	Producing and Development History (Skelly Unit, Lea "C" and Lea "D" leases)
F	Performance Graph (Skelly Project Area)
G	Well Status and Production Data - (Proposed Project Area)
H	Injection Well Completion Data
I	Injection Well Diagrammatic Sketches
J	Injection Well Logs

SKELLY UNIT
EDDY COUNTY, NEW MEXICO

Sheet 1 of 2

SKELLY UNIT
Well No.

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Former Lease and Well No.

Dow "A" No. 3
Lynch "A" No. 3
Lynch "A" No. 6
Dow "B" No. 20
Dow "B" No. 16
Dow "B" No. 17
Dow "B" No. 18
Dow "B" No. 19
Dow "B" No. 8
Dow "B" No. 15
Dow "B" No. 21
Dow "B" No. 13
Dow "B" No. 12
Dow "B" No. 9
Dow "B" No. 10
Dow "B" No. 14
Dow "A" No. 4
Dow "A" No. 5
Dow "A" No. 6
Dow "A" No. 12
Dow "A" No. 9
Lea "A" No. 6
Lea "A" No. 13
Lea "A" No. 12
Dow "A" No. 11
Dow "A" No. 8
Dow "A" No. 10
Dow "A" No. 7
Dow "A" No. 2
Dow "A" No. 14
Dow "A" No. 1
Dow "A" No. 13
Lea "A" No. 2
Lea "A" No. 11
Lea "A" No. 15
Lea "A" No. 8
Lea "A" No. 7
Lea "A" No. 14
Lea "A" No. 4
Lea "A" No. 1
Lynch "A" No. 1
Lynch "A" No. 15
Lynch "A" No. 17
Lynch "A" No. 13
Lynch "A" No. 5
Lynch "A" No. 16
Lea "A" No. 10
Lea "A" No. 9
Lea "A" No. 3
Lea "A" No. 5
Lynch "A" No. 7
Lynch "A" No. 4
Lynch "A" No. 11
Lynch "A" No. 10
Lynch "A" No. 8
Lynch "A" No. 9
Lynch "A" No. 12
Lynch "A" No. 14
Dow "B" No. 7
Dow "B" No. 5

SKELLY OIL CO.

EXHIBIT NO. C

DOCKET OR
CASE NO. 3547

DATE 4/5/67

SKELLY UNIT
EDDY COUNTY, NEW MEXICO

Sheet 2 of 2

SKELLY UNIT
Well No.

Former Lease and Well No.

61	Dow "B" No. 2
62	Dow "B" No. 3
63	Dow "B" No. 4
64	Dow "B" No. 6
65	Dow "B" No. 39
66	Dow "B" No. 38
67	Dow "B" No. 27
68	Dow "B" No. 26
69	Dow "B" No. 25
70	Lea "B" No. 1
71	Lea "B" No. 3
72	Lea "B" No. 13
73	Lea "B" No. 14
74	Dow "B" No. 22
75	Dow "B" No. 23
76	Dow "B" No. 24
77	Dow "B" No. 28
78	Lea "B" No. 2
79	Lea "B" No. 7
80	Lea "B" No. 9
81	Lea "B" No. 10
82	Lea "B" No. 6
83	Lea "B" No. 8
84	Lynch "B" No. 5
85	Lynch "B" No. 4
86	Lynch "B" No. 3
87	Lynch "B" No. 2
88	Dow "B" No. 1
89	Dow "B" No. 30
90	Dow "B" No. 29
91	Dow "B" No. 11
92	Dow "B" No. 31
93	Dow "B" No. 33
94	Dow "B" No. 34
95	Dow "B" No. 35
96	Lynch "B" No. 6
97	Lynch "B" No. 7
98	Dow "B" No. 37
99	Dow "B" No. 36
100	Dow "B" No. 32
101	Lynch "A" No. 2
102	Lea "B" No. 5
103	Lea "B" No. 11
104	Lea "B" No. 4
105	Lea "B" No. 12

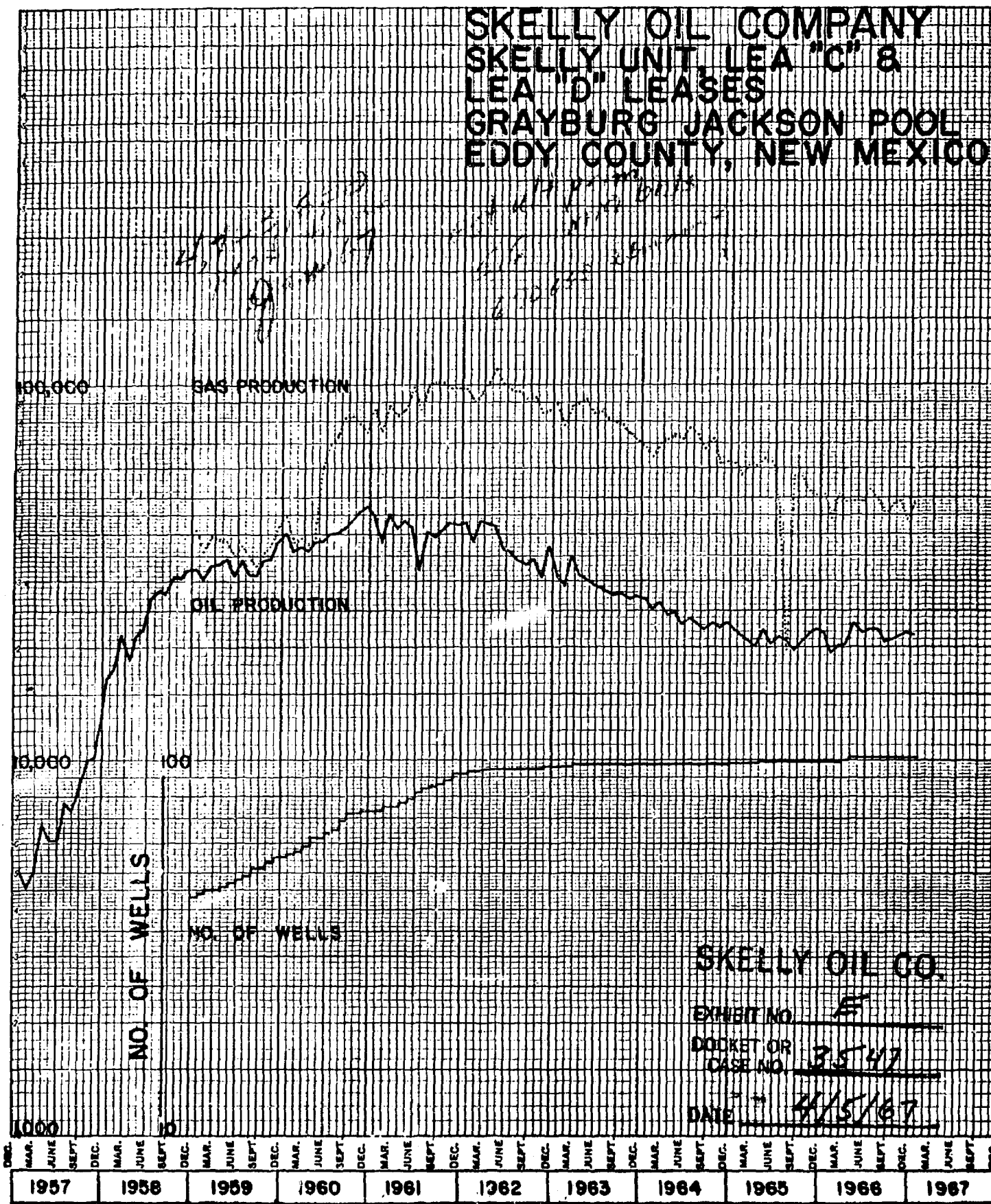
Well No. 1 - Shut In Penn. Gas Well.

Well No's. 2 - 16 Seven Rivers (Fren) Oil Wells.

Well No's. 17 - 105 Grayburg - San Andres Oil Wells or
Water Injection Wells.

MONTHLY PRODUCTION - OIL (Bbls.) - GAS (Mcf.)

SKELLY OIL COMPANY
SKELLY UNIT, LEA "C" 8
LEA "D" LEASES
GRAYBURG JACKSON POOL
EDDY COUNTY, NEW MEXICO



SKELLY OIL CO.

EXHIBIT NO. F

DOCKET OR CASE NO. 3547

DATE 4/5/67

SKELLY OIL COMPANY
 SKELLY UNIT PILOT WATERFLOOD
 PROJECT
 GRAYBURG JACKSON POOL
 EDDY COUNTY, NEW MEXICO

100,000

RATE - MONTHLY

10,000

1,000

BBL'S WATER INJECTED

BBL'S OIL
 PRODUCED

NUMBER OF
 PROJECT WELLS

30
 20
 15

SKELLY OIL CO.

EXHIBIT NO.

DOCKET OR
 CASE NO.

3547

4/5/67

1963 1964 1965 1966 1967

WELL STATUS - PRODUCTION DATA
SKELLY OIL COMPANY
SKELLY UNIT
 GRAYBURG-JACKSON POOL, EDDY COUNTY, NEW MEXICO

PAGE NO. 1

LEASE AND WELL NO.	OLD LEASE and WELL NUMBER	P.B.I.D. FEET	PRODUCTION C.S.G.		PRODUCING INTERVAL FEET	COMPLETION		INITIAL POTENTIAL BOPD	EST. (G-SA) CUM. OIL PROD. TO 1-1-67 BLS.	CURRENT PROD.		PROJECT WELL STATUS
			SIZE INCHES	DEPTH FEET		DATE	NO. / YEAR			RATES	BOPD	
Skelly Unit 3	Lynch "A"	3772	9 5/8	3800	2246-2282 3578-3746	1/63	60	P*	11024	2	P	Dual Prod.
Skelly Unit 11	Dow "B"	3574	8 5/8	3605	2217-2330 3358-3493	10/54	238	F*	19278	12	P	Dual Prod.
Skelly Unit 17	Dow "A"	3427	5 1/2	3555	3350-3402	8/59	130	F	27298	2	P	Prod.
Skelly Unit 18	Dow "A"	3499	5 1/2	3510	3302-3358	10/59	129	F	25107	2	P	Prod.
Skelly Unit 19	Dow "A"	3520	5 1/2	3520	3285-3342	9/60	43	F	14383	2	P	Inf.
Skelly Unit 20	Dow "A"	3642	5 1/2	3657	3261-3615	9/61	76	F	26892	3	P	Prod.
Skelly Unit 21	Dow "A"	3641	5 1/2 4 1/4	3546 3642	3552-3622	5/61	58	F	10894	2	P	Inf.
Skelly Unit 22	Lea "A"	3705	7	3311	3311-3705	6/45	72	F	68142	5	P	Inf.
Skelly Unit 23	Lea "A"	3854	4 1/2	3860	3504-3839	2/62	11	P	21670	5	P	Prod.
Skelly Unit 24	Lea "A"	3829	5 1/2	3844	3555-3760	9/61	135	F	26796	5	P	Inf.
Skelly Unit 25	Dow "A"	3654	4 1/2	3654	3408-3545	8/61	114	F	12934	2	F	Prod.
Skelly Unit 26	Dow "A"	3679	5 1/2	3742	3508-3580	2/61	108	F	16504	2	P	Inf.
Skelly Unit 27	Dow "A"	3600	5 1/2	3491	3491-3600	6/61	243	F	14586	2	P	Prod.
Skelly Unit 28	Dow "A"	3714	5 1/2	3619	3474-3714	3/61	225	F	18671			
Skelly Unit 29	Dow "A"	3389	7	3091	3091-3389	10/44	14	P	54967			
Skelly Unit 30	Dow "A"	3879	5 1/2	3900	3162-3782	5/66	87	P	7129			
Skelly Unit 31	Dow "A"	3788	8 1/4	3247	3247-3788	2/35	46	P	89934			

SKELLY OIL CO.

EXHIBIT NO. 9 Prod.

DOCKET OR CASE NO. 3547
 8 Prod.

DATE 4/5/67

WELL STATUS - PRODUCTION DATA
SKELLY OIL COMPANY
SKELLY UNIT

GRAYBURG-JACKSON POOL, EDDY COUNTY, NEW MEXICO

PAGE NO. 2

LEASE AND WELL NO.	OLD LEASE and WELL NUMBER	P.B.T.D. FEET	PRODUCTION CSG.		PRODUCING INTERVAL FEET	COMPLETION DATE MO. / YEAR	INITIAL POTENTIAL BOPD	EST. (G-SA)		CURRENT PROD. RATES BOPD	PROJECT WELL STATUS	
			SIZE INCHES	DEPTH FEET				CUM. OIL PROD. 1-1-67 BLS.				
Skelly Unit 32	Dow "A"	13	5 1/2	3808	3521-3615	10/61	284	F	22329	8	P	Inf.
Skelly Unit 33	Lea "A"	2	7	3548	3208-3548	12/44	54	P	26796	5	P	Prod.
Skelly Unit 34	Lea "A"	11	5 1/2	3850	3737-3568-3850	6/61	189	F	29607	8	P	Inf.
Skelly Unit 35	Lea "A"	15	5 1/2	3918	3937-3322-3552	5/66	60	P	3970	12	P	Prod.
Skelly Unit 36	Lea "A"	8	7	3616	3318-3616	11/45	80	F	58192	4	P	Prod.
Skelly Unit 37	Lea "A"	7	7	3599	3290-3599	9/45	20	P	44504	4	P	Prod.
Skelly Unit 38	Lea "A"	14	5 1/2	3660	3935-3313-3618	4/66	124	P	8043	22	P	Inf.
Skelly Unit 39	Lea "A"	4	7	3510	3250-3240-3510	3/45	11	P	57246	4	P	Prod.
Skelly Unit 40	Lea "A"	1	7	3811	3261-3811	9/34	50	S	151729	9	P	Inf.
Skelly Unit 41	Lynch "A"	1	6 5/8	3818	3140-3140-3818	10/27	30	S	281132	8	P	Prod.
Skelly Unit 42	Lynch "A"	15	4 1/2	3787	3794-3481-3606	11/61	531	F	26265			Inf.
Skelly Unit 43	Lynch "A"	17	4 1/2	3739	3757-3451-3461	5/65	165	F	13166	15	P	Prod.
Skelly Unit 44	Lynch "A"	13	5 1/2	3571	3472-3376-3571	3/59	79	F	22539			Inf.
Skelly Unit 45	Lynch "A"	5	5 1/2	3805	3810-3476-3804	2/51	18	P	36159	30	P	Prod.
Skelly Unit 46	Lynch "A"	16	4 1/2	3813	3820-3509-3808	11/61	543	F	25843			Inf.
Skelly Unit 47	Lea "A"	10	7	3470	3230-3470	12/47	29	P	39897	6	P	Prod.
Skelly Unit 48	Lea "A"	9	7	3511	3248-3248-3511	12/46	57	F	52324	7	P	Inf.
Skelly Unit 49	Lea "A"	3	7	3658	3255-3255-3658	1/45	96	F	89462	4	P	Prod.
Skelly Unit 50	Lea "A"	5	7	3855	3265-3265-3855	4/45	165	F	165943	11	P	Prod.

WELL STATUS - PRODUCTION DATA
SKELLY OIL COMPANY
SKELLY UNIT

PAGE NO. 3

GRAYBURG-JACKSON POOL, EDDY COUNTY, NEW MEXICO

GRAYBUEG-JACKSON POOL, EDDY COUNTY, NEW MEXICO														
LEASE AND WELL NO.	OLD LEASE and WELL NUMBER	P.B.T.D. FEET	PRODUCTION CSG.		PRODUCING		COMPLETION		INITIAL POTENTIAL BOPD	EST. (G-S&A) CUM. OIL PROD. TO 1-1-67 BLS.		CURRENT PROD. RATES BOPD		WELL STATUS
			SIZE INCHES	DEPTH FEET	INTERVAL FEET	DATE NO. / YEAR	TO	BOPD		BOPD				
Skelly Unit 51	Lynch "A"	7	3588	8 5/8	3620	3416-3574	1/55	178	F	41621	17	P	Prod.	
Skelly Unit 52	Lynch "A"	4	3790	7	3130	3130-3790	2/46	22	P	16854			Inf.	
Skelly Unit 53	Lynch "A"	11	3497	7	3432	3387-3497	11/58	275	F	41933	26	P	Prod.	
Skelly Unit 54	Lynch "A"	10	3451	7	3399	3351-3451	10/58	644	F	29515			Inf.	
Skelly Unit 55	Lynch "A"	8	3535	7	3474	3427-3535	7/58	372	F	34888	5	P	Prod.	
Skelly Unit 56	Lynch "A"	9	3580	7	3523	3478-3580	8/58	224	F	29976			Inf.	
Skelly Unit 57	Lynch "A"	12	3710	5 1/2	3618	3501-3710	2/59	228	P	43693	6	P	Prod.	
Skelly Unit 58	Lynch "A"	14	3700	5 1/2	3589	3502-3700	8/59	66	P	23579	4	P	Inf.	
Skelly Unit 66	Dow "B"	38	3708	4 1/2	3714	3568-3695	2/62	80	F	28966	9	P	Prod.	
Skelly Unit 70	Lea "B"	1	3874	7 4 1/2 L	3223 3876	3764-3866	11/40	100	F	132688	10	P	Prod.	
Skelly Unit 71	Lea "B"	3	3872	7	3202	P & A	8/47	0		0	0		Inf.	
Skelly Unit 72	Lea "B"	13	3843	4 1/2	3854	3808-3830	11/61	155	P	40356	10	P	Prod.	
Skelly Unit 73	Lea "B"	14	3831	4 1/2	3834	3769-3814	12/61	70	F	40378	9	P	Inf.	
Skelly Unit 77	Dow "B"	28	3446	7	3388	3388-3446	1/58	1108	F	62232	4	P	Prod.	
Skelly Unit 78	Lea "B"	2	3673	7	3190	3190-3673	11/41	44	F	112263	8	P	Prod.	
Skelly Unit 79	Lea "B"	7	3894	5 1/2	3634	3281-3894	4/60	481	F	44176	11	P	Prod.	
Skelly Unit 80	Lea "B"	9	3878	5 1/2	3758	3269-3878	5/60	257	F	45644	14	P	Prod.	

WELL STATUS - PRODUCTION DATA
SKELLY OIL COMPANY
SKELLY UNIT

GRAYBURG-JACKSON POOL, EDDY COUNTY, NEW MEXICO

PAGE NO. 4

LEASE AND WELL NO.	OLD LEASE and WELL NUMBER	P.B.T.D. FEET	PRODUCTION C.S.G.		PRODUCING INTERVAL FEET	COMPLETION DATE MO. / YEAR	INITIAL POTENTIAL BOPD	EST. (G-SA)		CURRENT PROD. RATES BOPD	PROJECT WELL STATUS	
			SIZE INCHES	DEPTH FEET				CUM. OIL PROD. 1-1-67 BBS.				
Skelly Unit 81	Lea "B"	10	5 1/2	3784	3300-3910	7/60	128	F	39562	25	P	Prod.
Skelly Unit 82	Lea "B"	6	5 1/2	3681	3321-3877	6/59	552	F	63462	10	P	Prod.
Skelly Unit 83	Lea "B"	8	5 1/2	3700	3323-3900	5/60	348	F	40849	8	P	Inf.
Skelly Unit 84	Lynch "B"	5	5 1/2	3708	3349-3920	7/60	153	F	31590	3	P	Prod.
Skelly Unit 85	Lynch "B"	4	5 1/2	3705	3339-3803	4/59	111	F	42980	6	P	Inf.
Skelly Unit 86	Lynch "B"	3	7	3612	3315-3769	7/58	508	F	64467	12	P	Prod.
Skelly Unit 87	Lynch "B"	2	7 4 1/2 L	3461 3689	3241-3659	11/57	417	F	65970	25	P	Prod.
Skelly Unit 96	Lynch "B"	6	5 1/2	3770	3668-3711	8/60	35	P	18333	4	P	Inf.
Skelly Unit 97	Lynch "B"	7	5 1/2	3812	3812-3945	8/60	58	P	13813	4	P	Prod.
Skelly Unit 101	Lynch "A"	2	7	3020	3020-3350	3/41	31	P	32933	3	P	Prod.
Skelly Unit 102	Lea "B"	5	5 1/2	3679	3596-3734	6/59	151	F	16406	2	P	Prod.
Skelly Unit 103	Lea "B"	11	5 1/2	3642	3410-3596	3/61	92	F	12490	2	P	Prod.
Skelly Unit 104	Lea "B"	4	7	3305	3305-3679	8/48	14	P	30571	3	P	Prod.
Skelly Unit 105	Lea "B"	12	5 1/2	3728	3548-3704	8/61	41	P	15128	3	P	Inf.

L - Liner

* - 7-Rivers Fren and Grayburg-San Andres Dual

WT/bh
MARCH, 1967

INJECTION WELL COMPLETION DATA
SKELLY OIL COMPANY
SKELLY UNIT
 (GRAYBURG JACKSON POOL
 EDY COUNTY, NEW MEXICO

LEASE AND WELL NO.	LOCATION UNIT-SECTION	TOTAL		COMPLETION		SURFACE CASING		CEMENT		PRODUCTION CASING		CEMENT	
		DEPTH FEET	INTERVAL FEET	SIZE IN.	DEPTH FEET	SACKS	TOP*/FT.	SIZE IN.	WEIGHT LBS./FT.	GRADE	DEPTH FEET	SACKS	TOP* (FEET)
Skelly Unit #19	F-15	3670 3520 PB	3285-3342	8 5/8	780	100	220 C	5 1/2	15.5	J-55	3520	385	1513 S
Skelly Unit #21	H-15	3642 3641 PB	3552-3622	8 5/8	751	100	176 C	5 1/2 4	15.5 11.6	J 55 J-55	3546 3642	385 200	932 S
Skelly Unit #22	J-14	3875 3705 PB	3311-3705	8 5/8	738	75	529 C	7	20	H-40	3311	150	1620 C
Skelly Unit #24	L-14	3844 3829 PB	3555-3760	8 5/8	772	100	299 C	5 1/2	15.5	J-55	3844	385	1527 S
Skelly Unit #26	J-15	3764 3679 PB	3508-3580	8 5/8	728	125	Circ. C	5 1/2	15.5	J-55	3742	350	1724 S
Skelly Unit #30	N-15	3900 3879 PB	3162-3782	8 5/8	533	350	Circ. C	5 1/2	14	J-55	3900	250	2699 S
Skelly Unit #32	P-15	3811 3803 PB	3521-3615	8 5/8	725	100	412 C	5 1/2	15.5	J-55	3808	385	1490 S
Skelly Unit #34	N-14	3850	3568-3850	8 5/8	750	100	175 C	5 1/2	15.5	J-55	3737	380	1335 S
Skelly Unit #38	B-23	3935 3660 PB	3313-3618	8 5/8	626	350	Circ.	5 1/2	14	J-55	3935	250	2730 S
Skelly Unit #40	D-23	3828 3811 PB	3261-3811	10 3/4	677	50	465 C	7	24	J-55	3261	50	2697 C
Skelly Unit #42	B-22	3794 3787 PB	3481-3606	8 5/8	616	300	Circ.	4 1/2	11.6	J-55	3794	400	1153 S
Skelly Unit #44	F-22	3571	3376-3571	8 5/8	680	150	Circ. C	5 1/2	14	J-55	3472	360	1570 S
Skelly Unit #46	H-22	3820 3813 PB	3509-3808	8 5/8	650	280	Circ. C	4 1/2	11.6	J-55	3820	400	

SKELLY OIL CO.
 1570 S
 EXHIBIT NO. H
 DOCKET OR CASE NO. 3547
 DATE 4/5/67

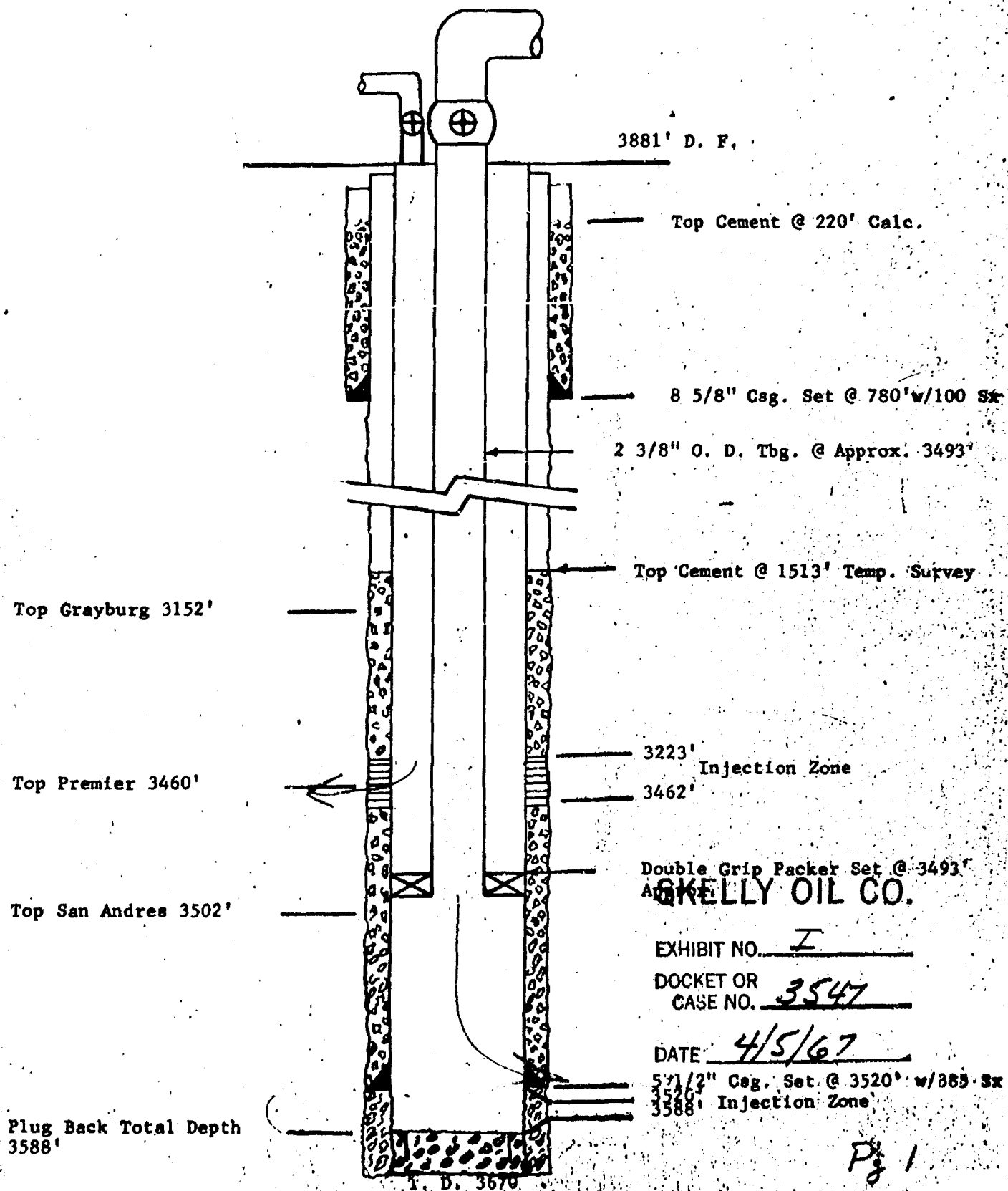
INJECTION WELL COMPLETION DATA
SEELLY OIL COMPANY
SEELLY UNIT
GRAYBURG JACKSON POOL
EDDY COUNTY, NEW MEXICO

LEASE AND WELL NO.	LOCATION UNIT-SECTION	TOTAL		COMPLETION		SURFACE CASING				PRODUCTION CASING			
		DEPTH FEET	INTERVAL FEET	SIZE IN.	DEPTH FEET	CEMENT SACKS	CEMENT TOP*/FT.	SIZE IN.	WEIGHT LBS./FT.	GRADE	DEPTH FEET	SACKS	CEMENT TOP* (FEET)
Skelly Unit #48	F-23	3705 3511 PB	3248-3511	8 5/8	740	125	389 C	7	20	H-40	3248	150	1558 C
Skelly Unit #52	J-22	3790	3130-3790	8 5/8	655	100	233 C	7	20	H-40	3130	150	810 C
Skelly Unit #54	L-22	3451	3351-3451	8 5/8	675	150	Circ.	7	20	J-55	3399	325	Circ. C
Skelly Unit #56	N-22	3580	3478-3580	8 5/8	729	150	Circ.	7	20	J-55	3523	475	Circ. C
Skelly Unit #58	P-22	3700	3502-3700	8 5/8	760	95	220 C	5 1/2	15.5	J-55	3589	355	1516 S
Skelly Unit #71	J-23	3872	P & A	8 5/8	206-751	95	487 C	7	20	H-40	1282-3202	150	2062 C
Skelly Unit # 73	L-23	3835 3831 PB	3769-3814	8 5/8	779	350	Circ.	4 1/2	10.5	J-55	3834	400	1612 S
Skelly Unit #83	D-26	3900	3323-3900	8 5/8	783	100	208 C	5 1/2	15.5	J-55	3700	375	1766 S
Skelly Unit #85	D-27	3803	3339-3803	8 5/8	754	125	Circ. C	5 1/2	15.5	J-55	3705	360	1515 S
Skelly Unit #96	F-27	7990 3737 PB	3668-3711	8 5/8	2075	575	Circ. C	5 1/2	15.5	J-55	3770	350	2194 S
Skelly Unit #105	F-14	3728 3721 PB	3548-3704	8 5/8	821	100	264 C	5 1/2	15.5	J-55	3728	385	1348 S

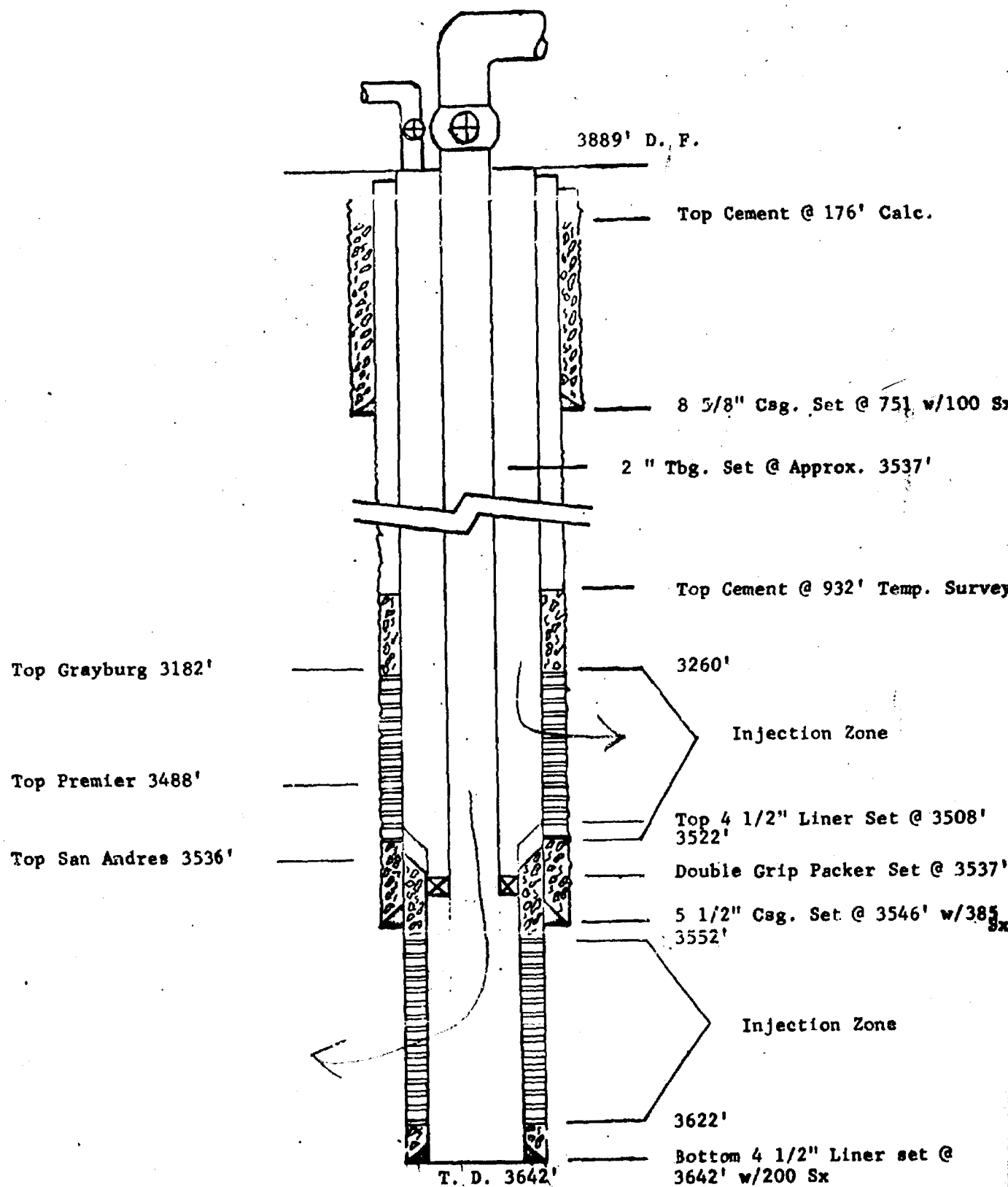
* Circ-Circulated
C - Calculated
S - Temperature Survey

WT/bh
MARCH, 1967

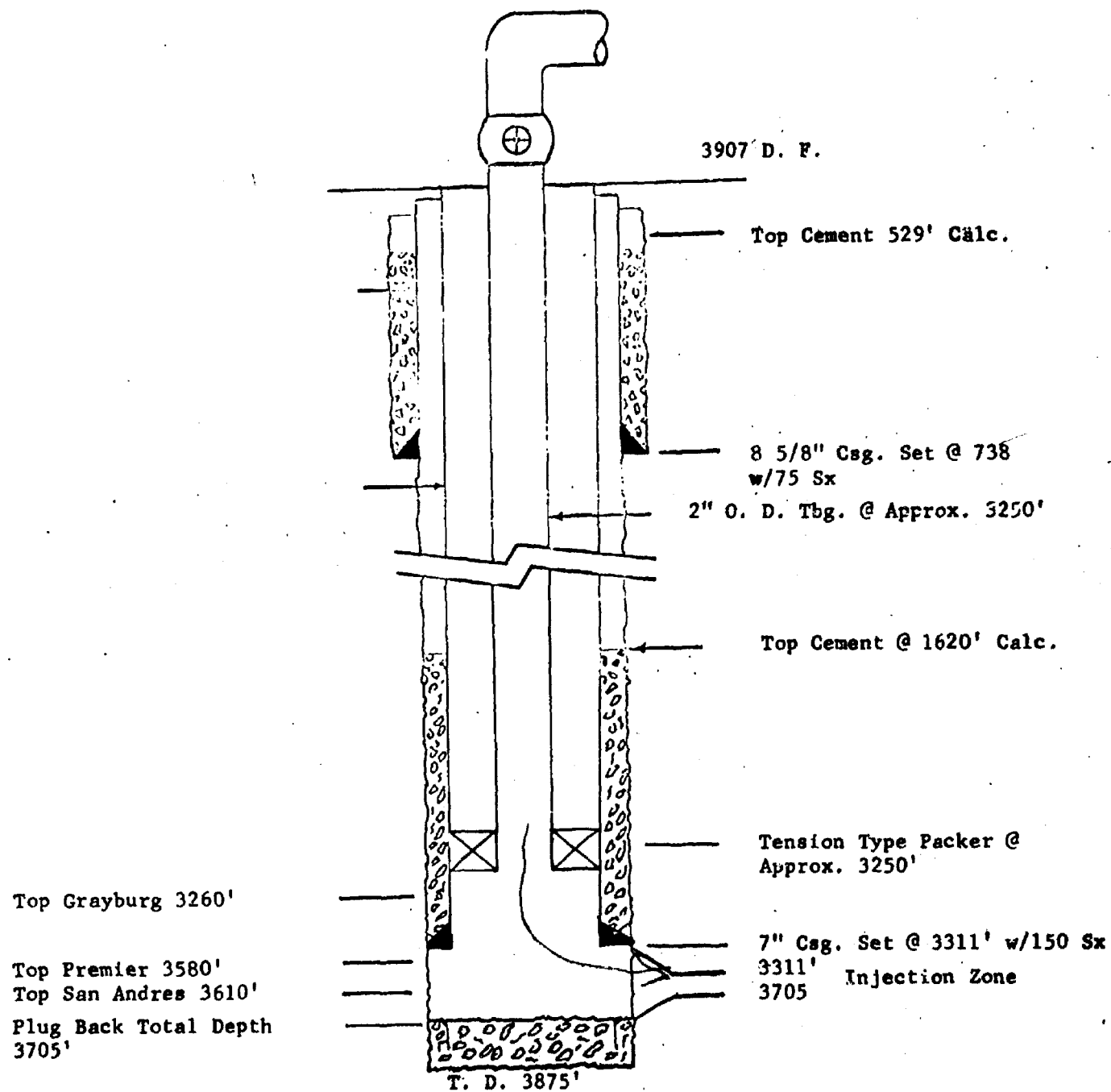
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 19
 1980' FNL 1960' FWL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



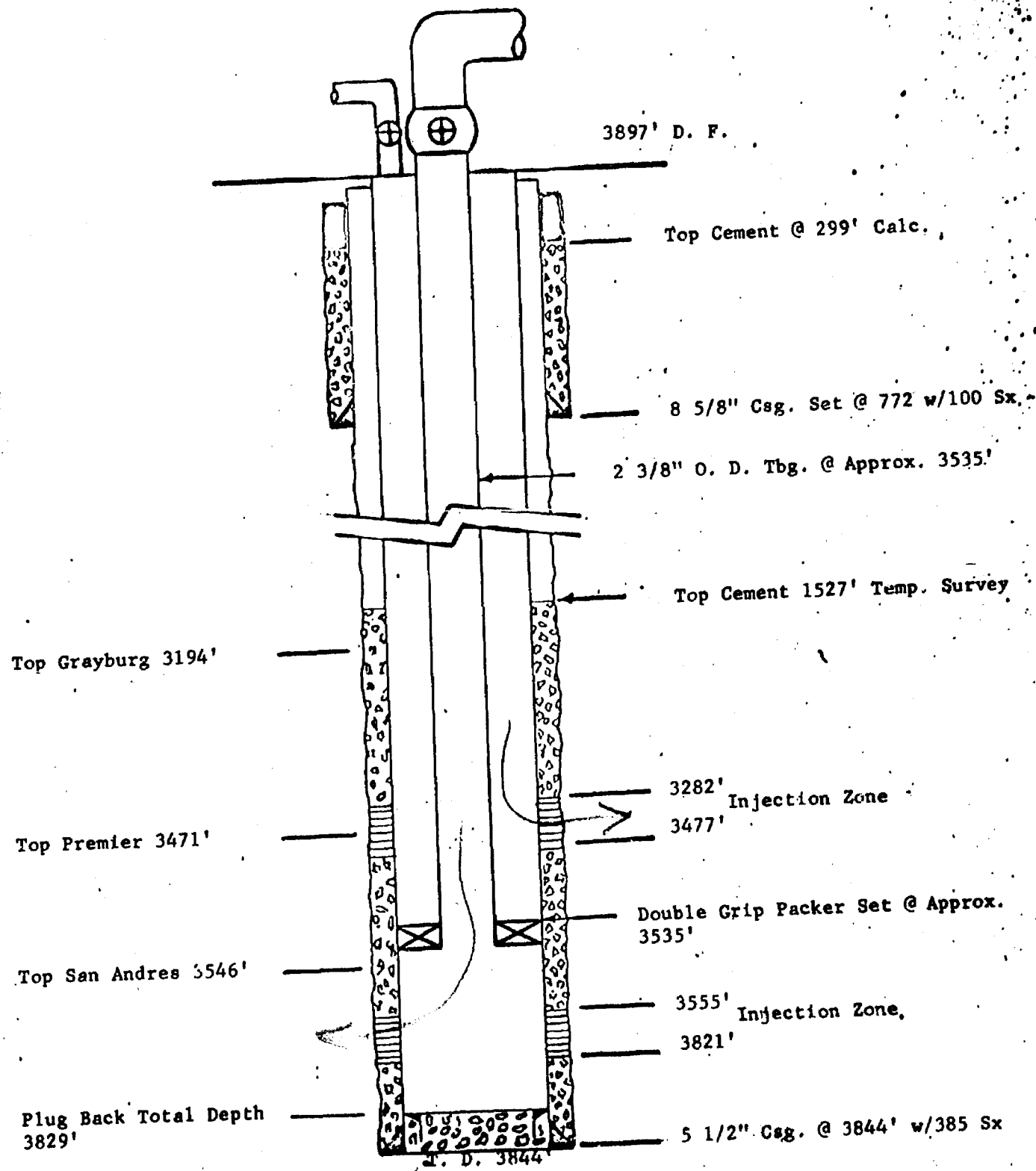
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 21
 1980' FNL 660' FEL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



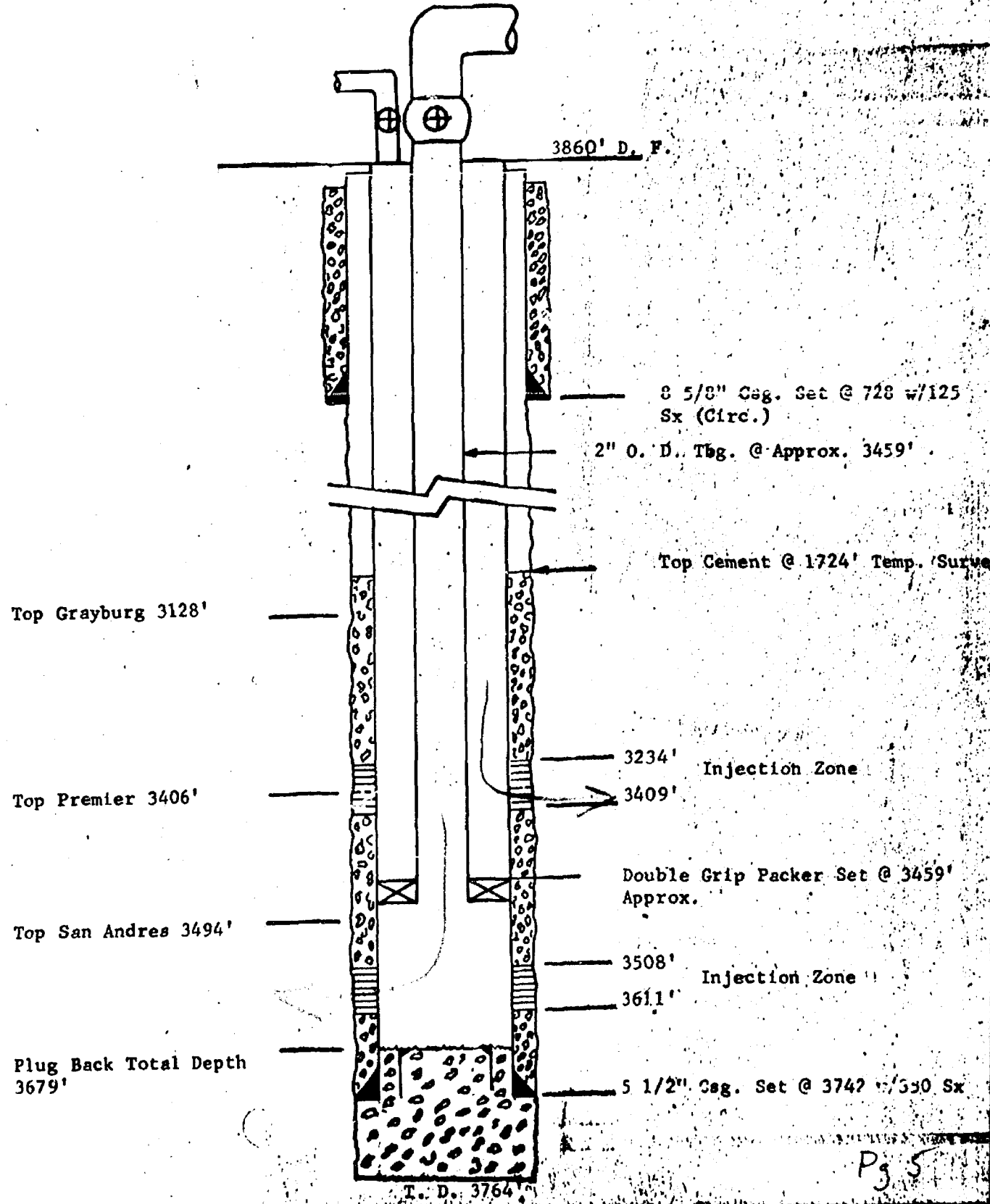
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 22
 1980' FEL 1980' FSL Section 14, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



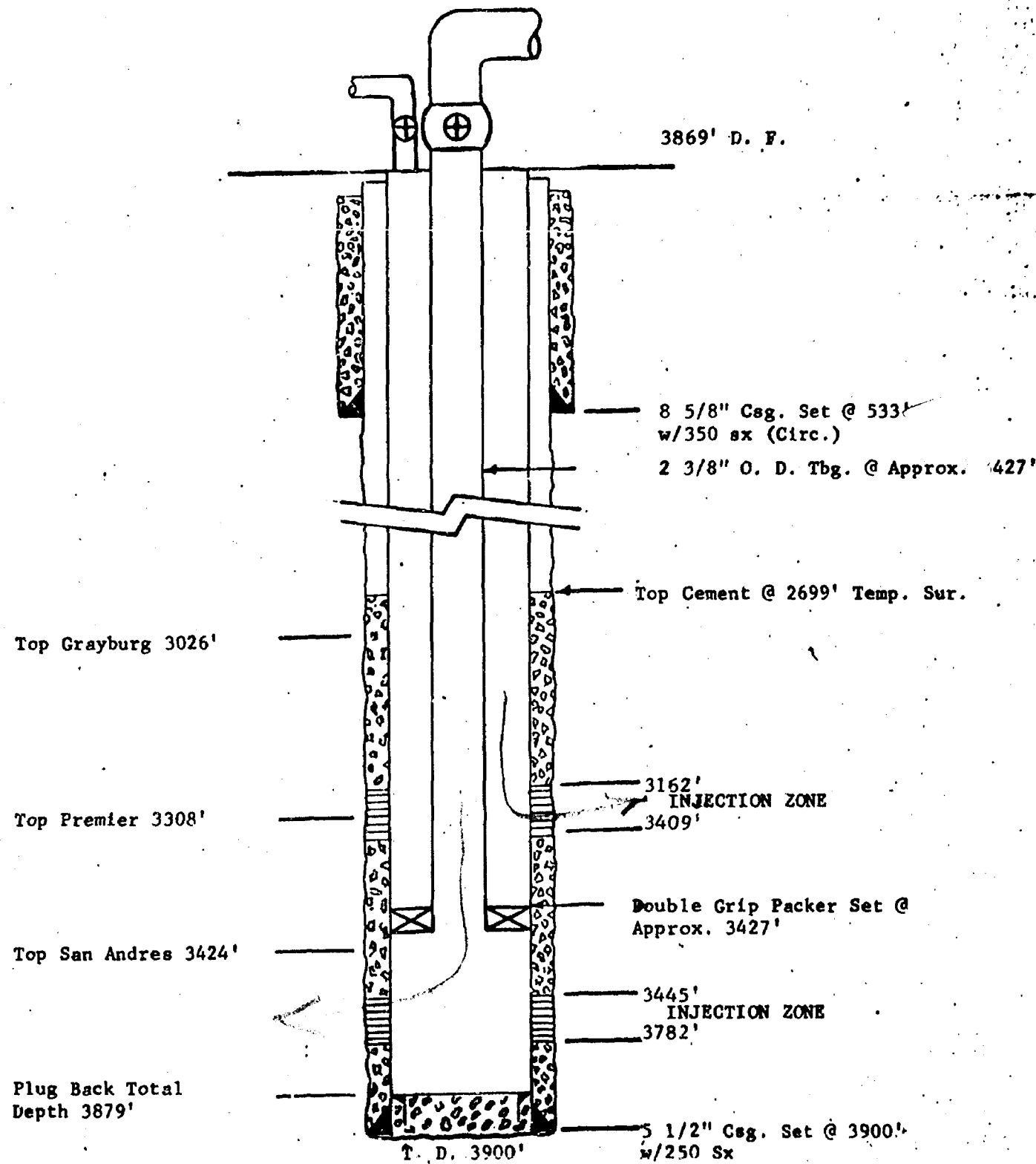
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 24
 1980' FSL 660' FWL Section 14, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



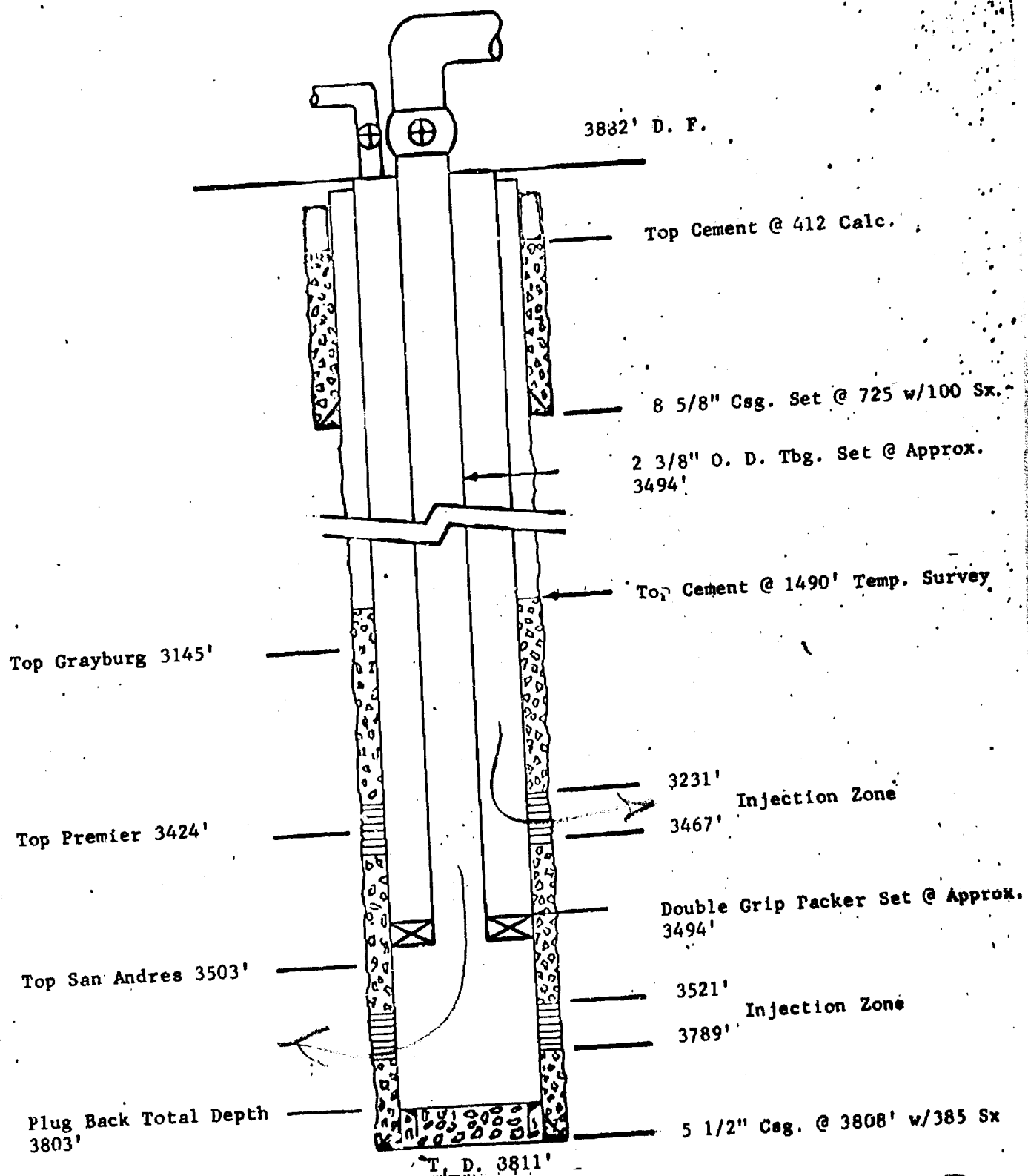
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 26
 1880' FSL 1980' FEL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



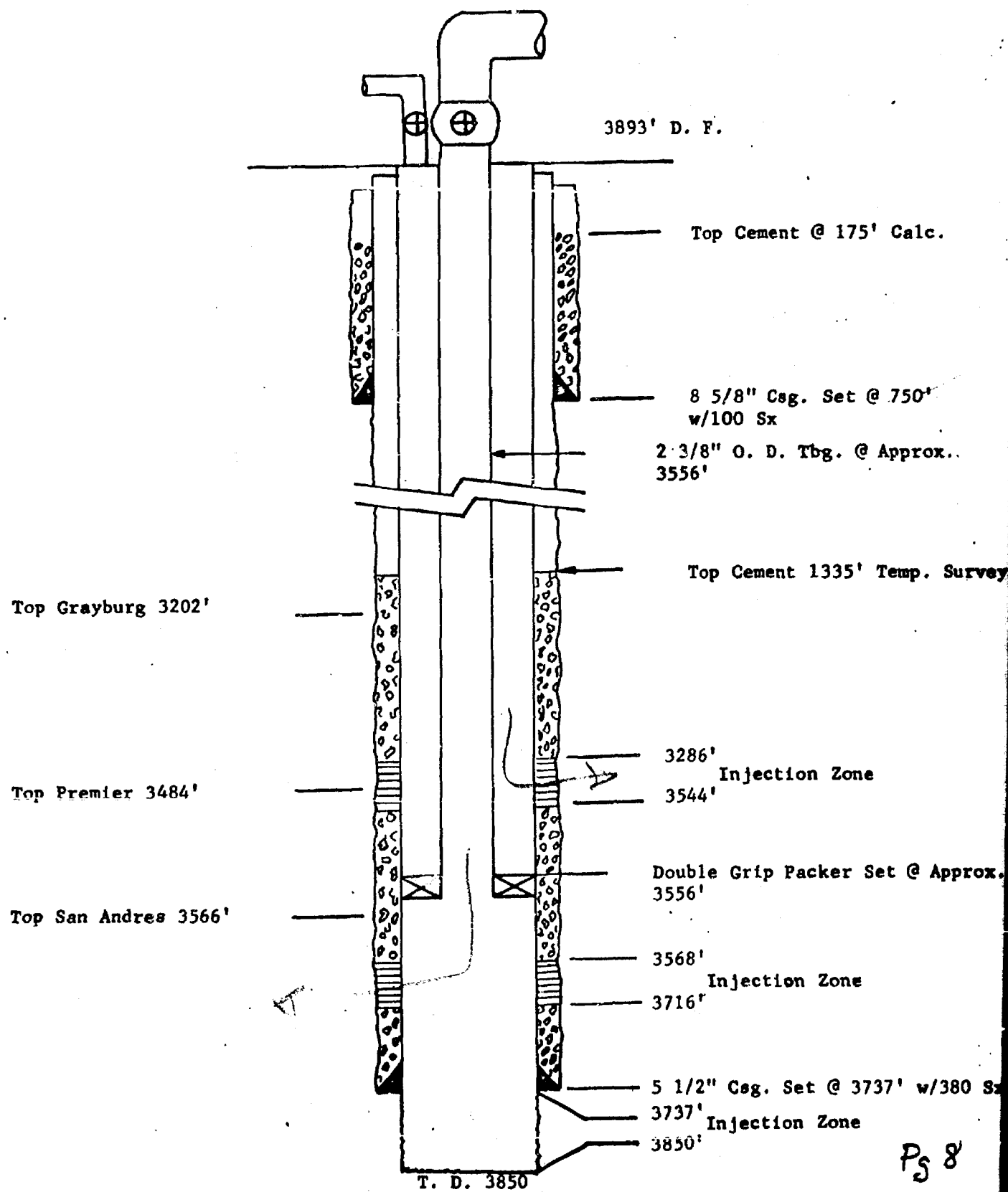
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 30
 650' FSL 2087 FWL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



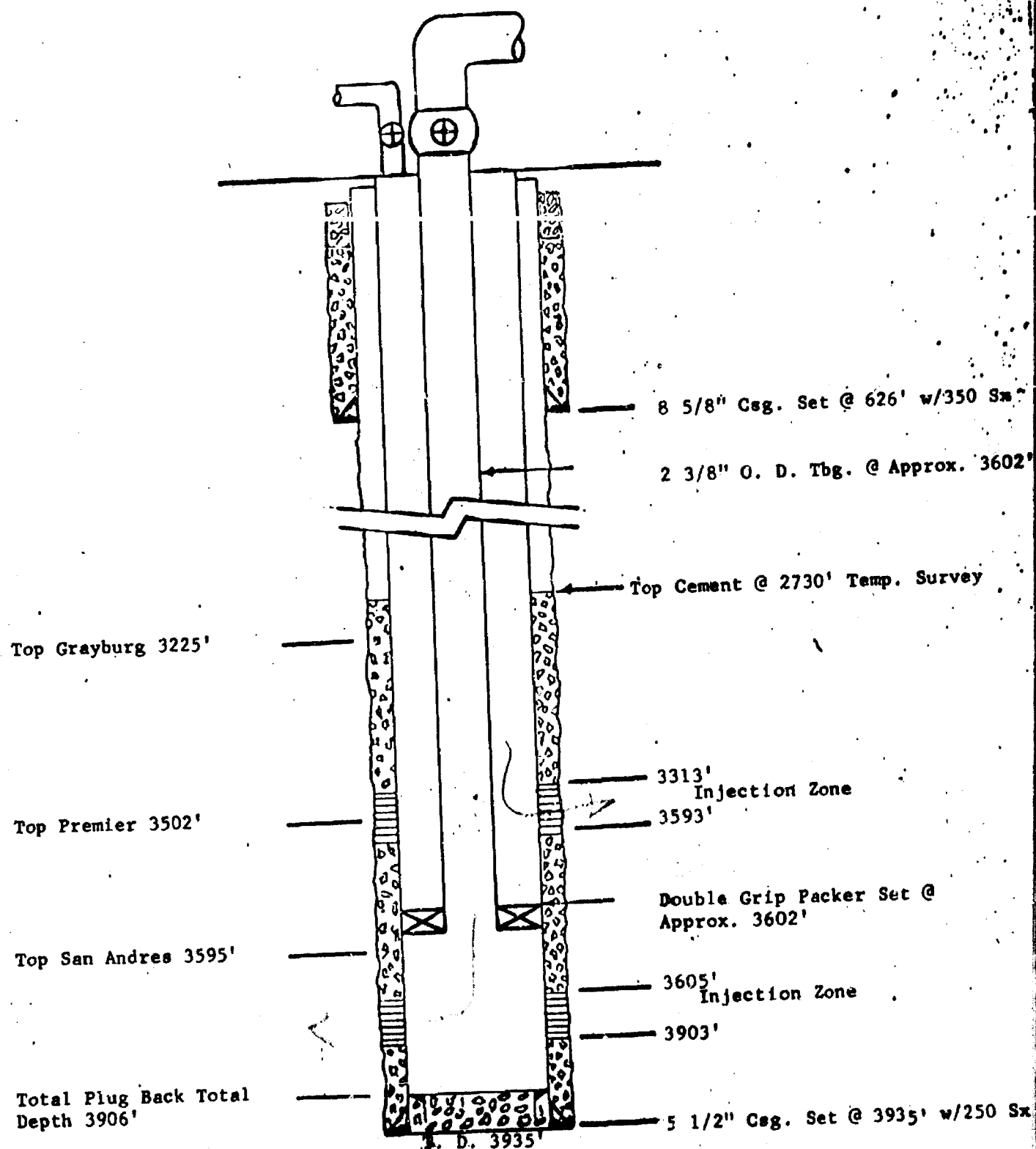
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 32
 660' FSL 660' FEL Section 15, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



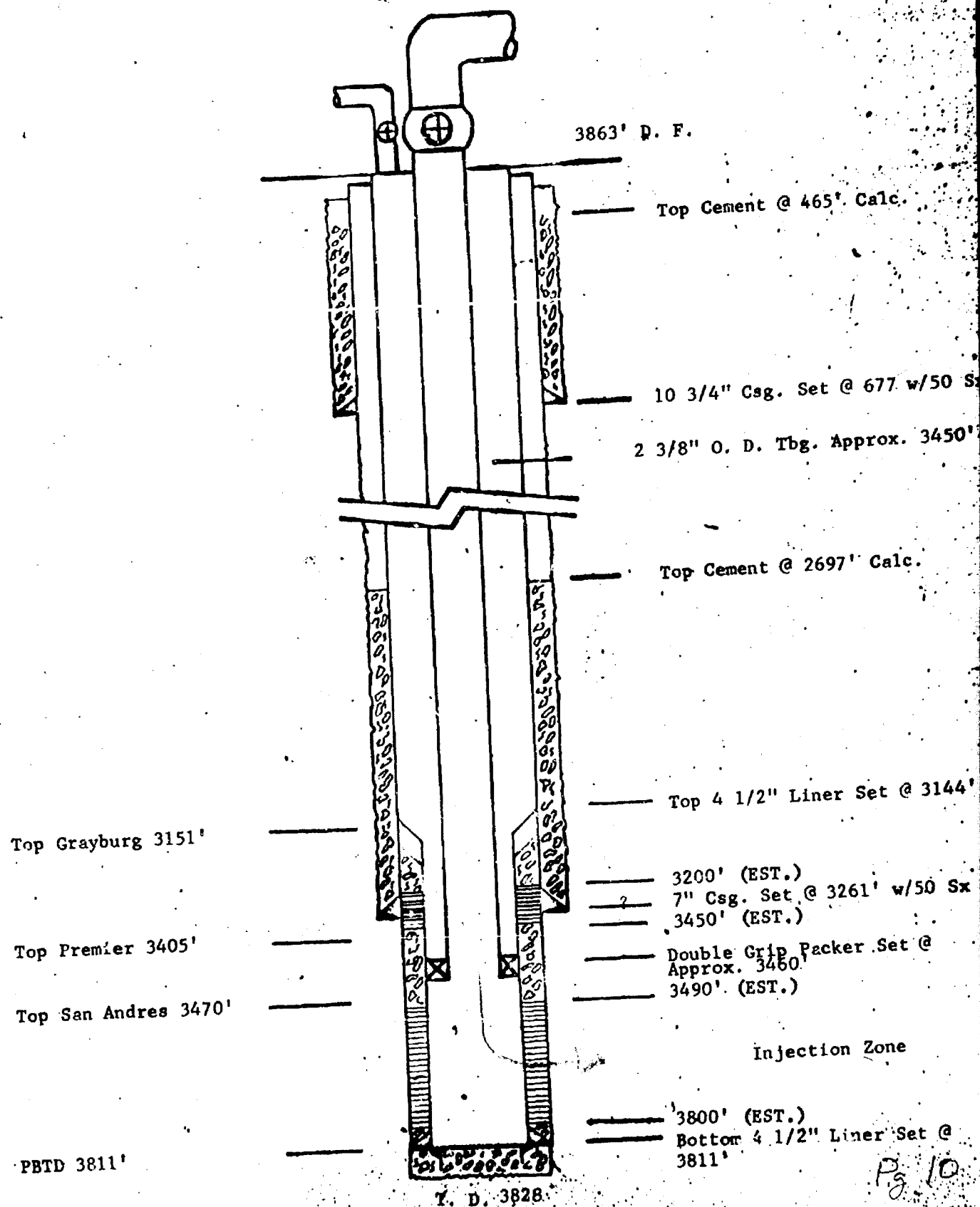
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 34
 660' FSL & 1980' FWL Section 14, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



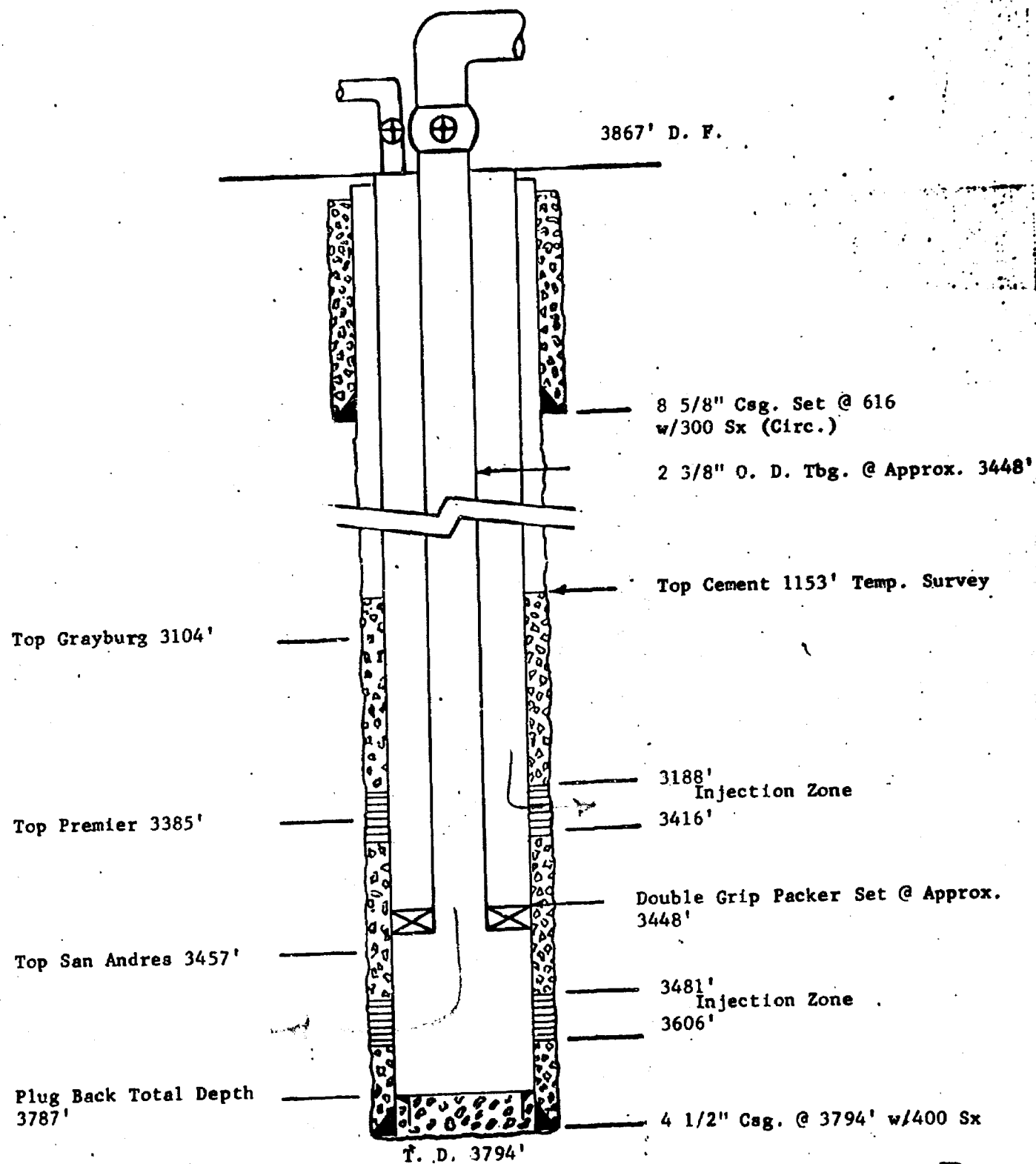
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 38
 560' FNL 1980' FEL Section 23, T 17 S. R 31 E
 GRAYBURG JACKSON INJECTION WELL



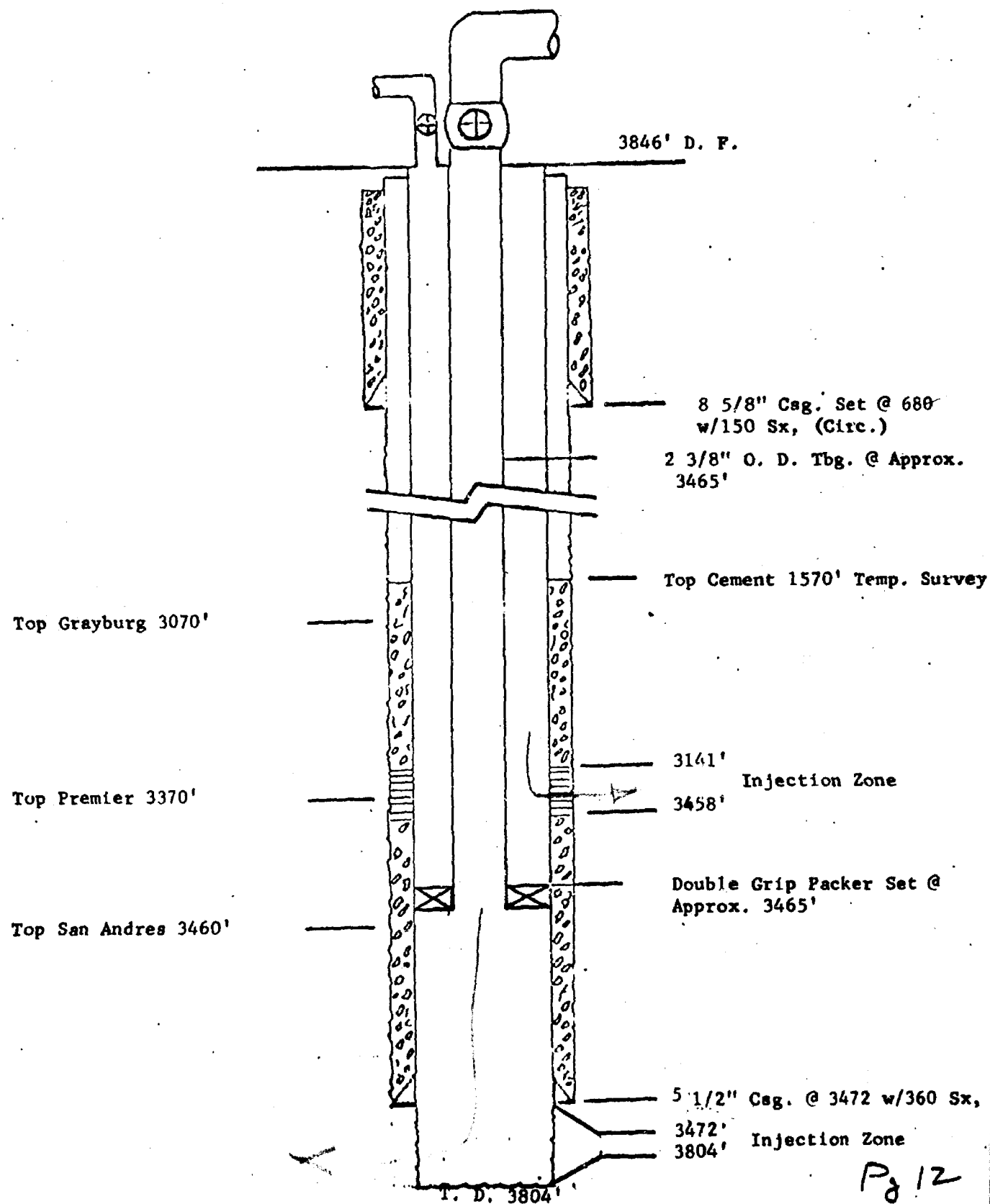
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 40
 660' FNL 660' FWL Section 23, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



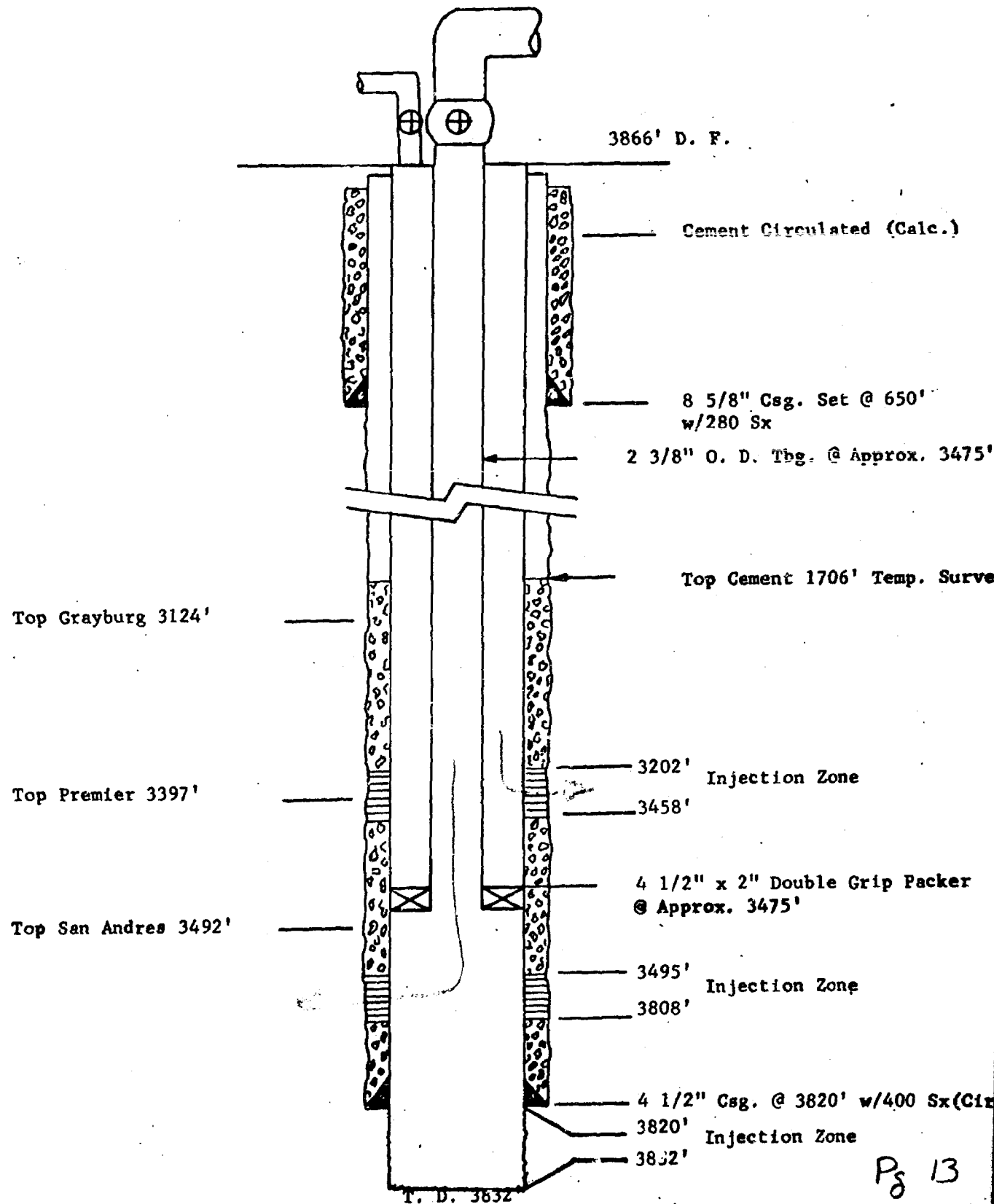
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 42
 660' FNL 1880' FEL Section 22, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



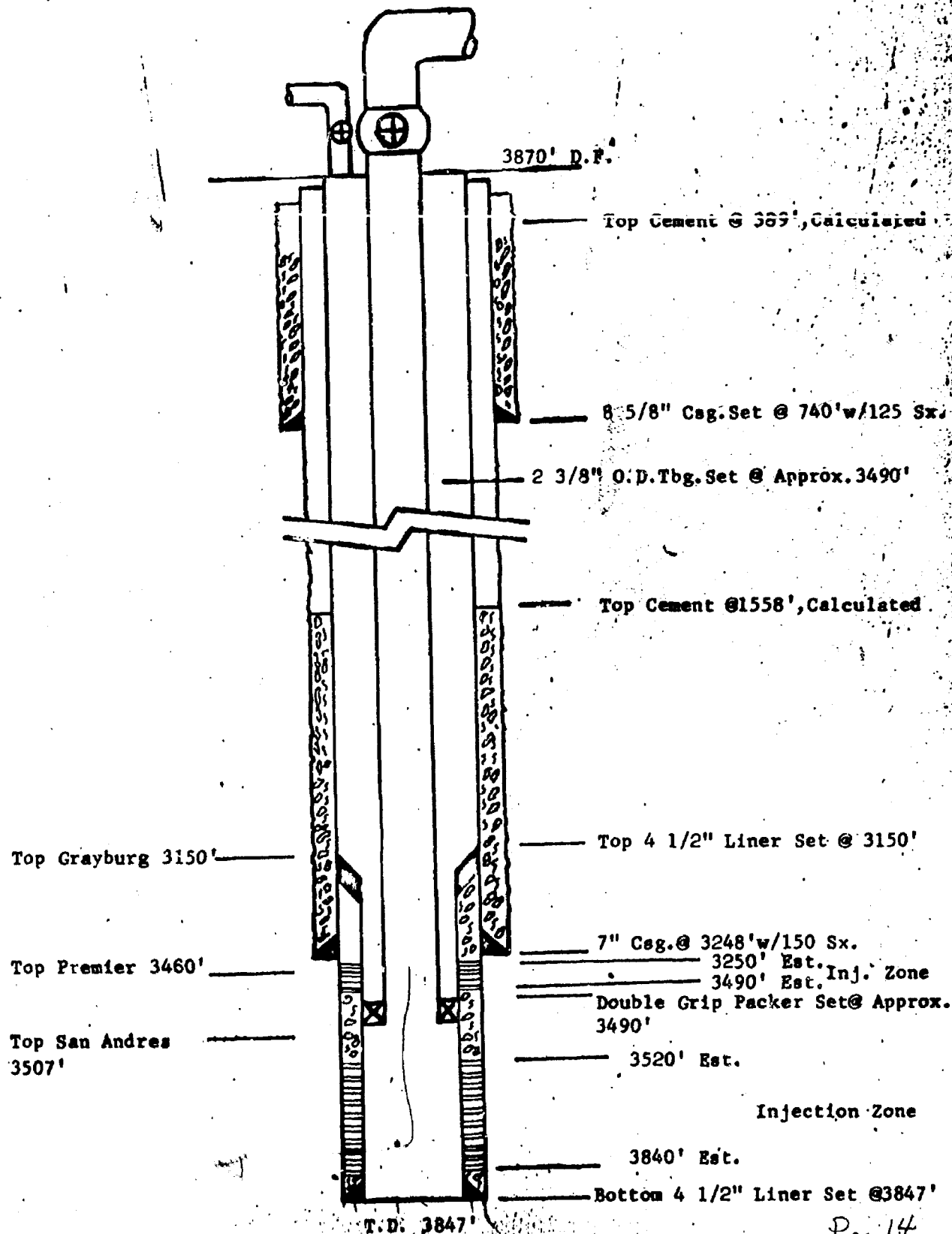
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 1980' FNL 1980' FWL Section 22, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



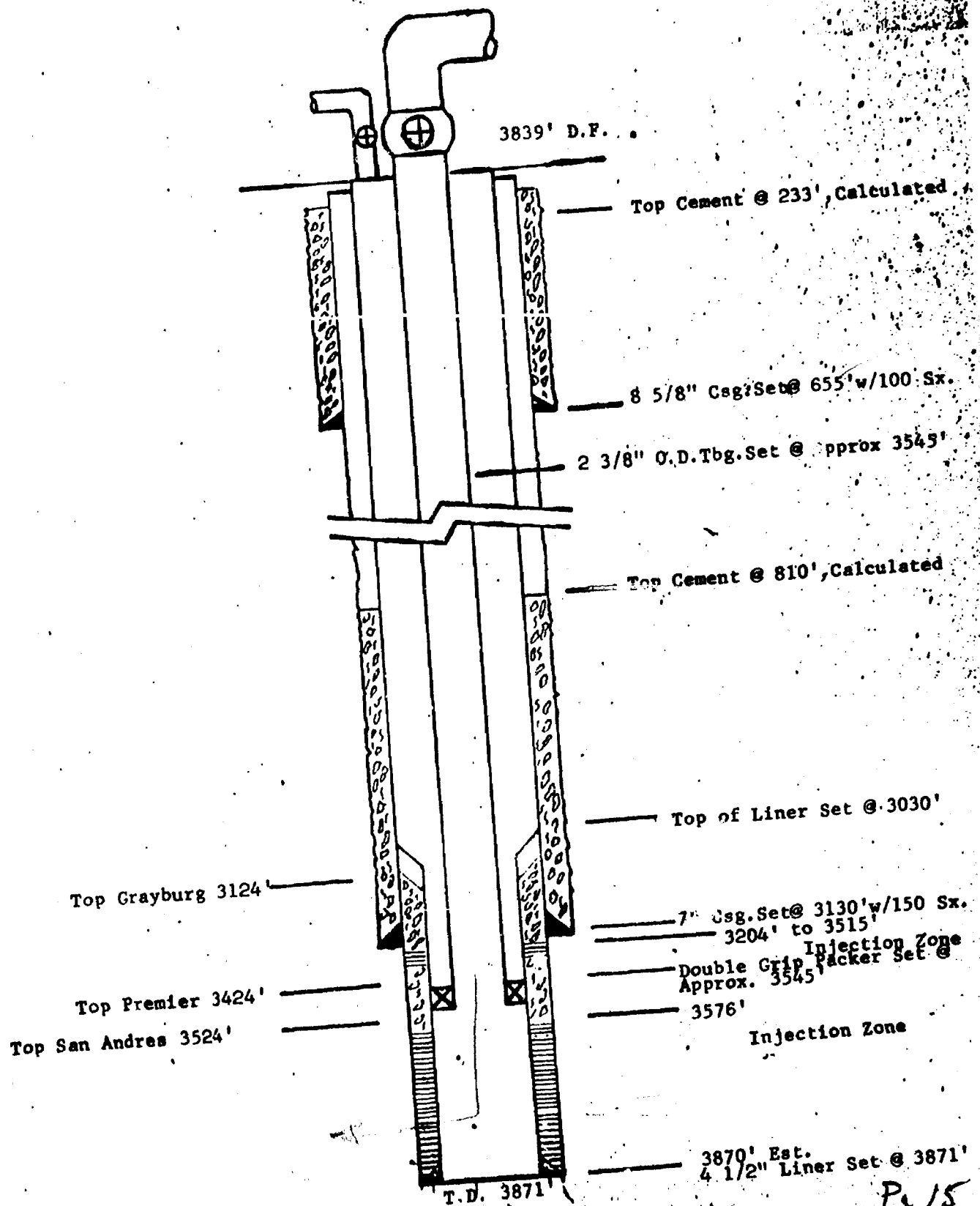
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 46
 1980' FNL 560' FEL Section 22, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



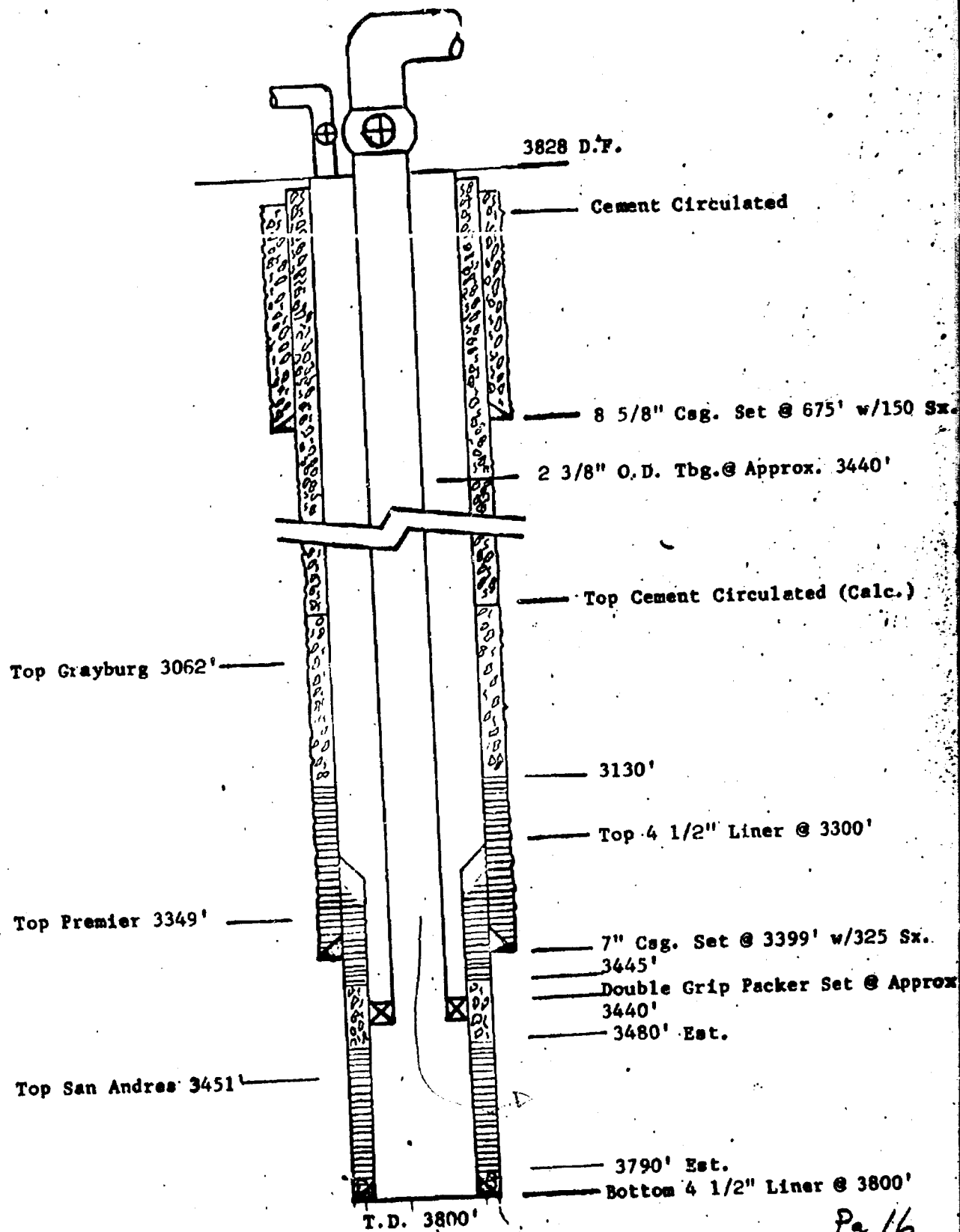
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 48
 1980' FNL 1980' FWL, Section 23, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



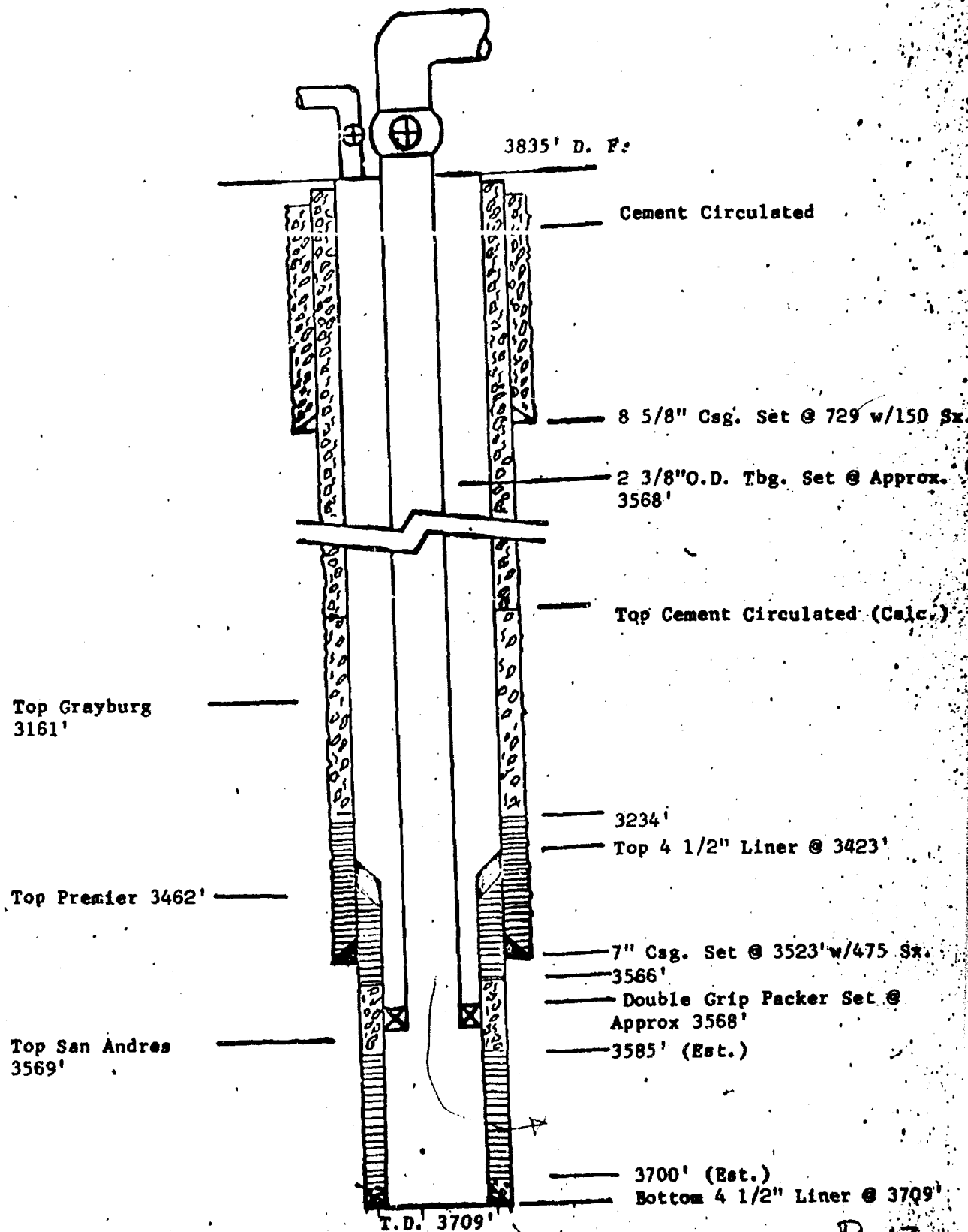
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 52
 1980' FEL 1980' FSL, Section 22, T 17S, R 31 E
 GRAYBURG SAN ANDRES INJECTION WELL



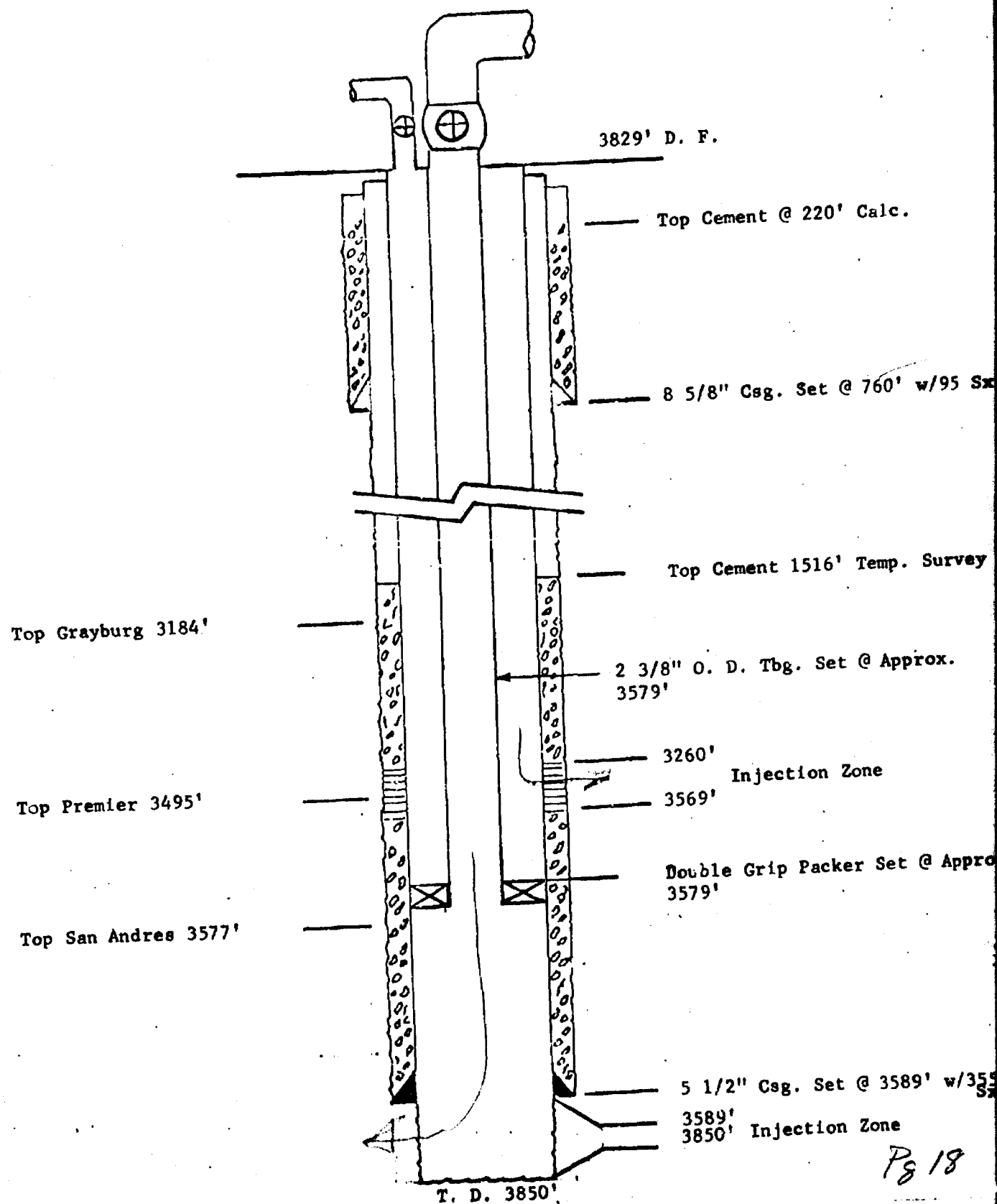
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 54
 1980' FSL 660' FWL, Section 22, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



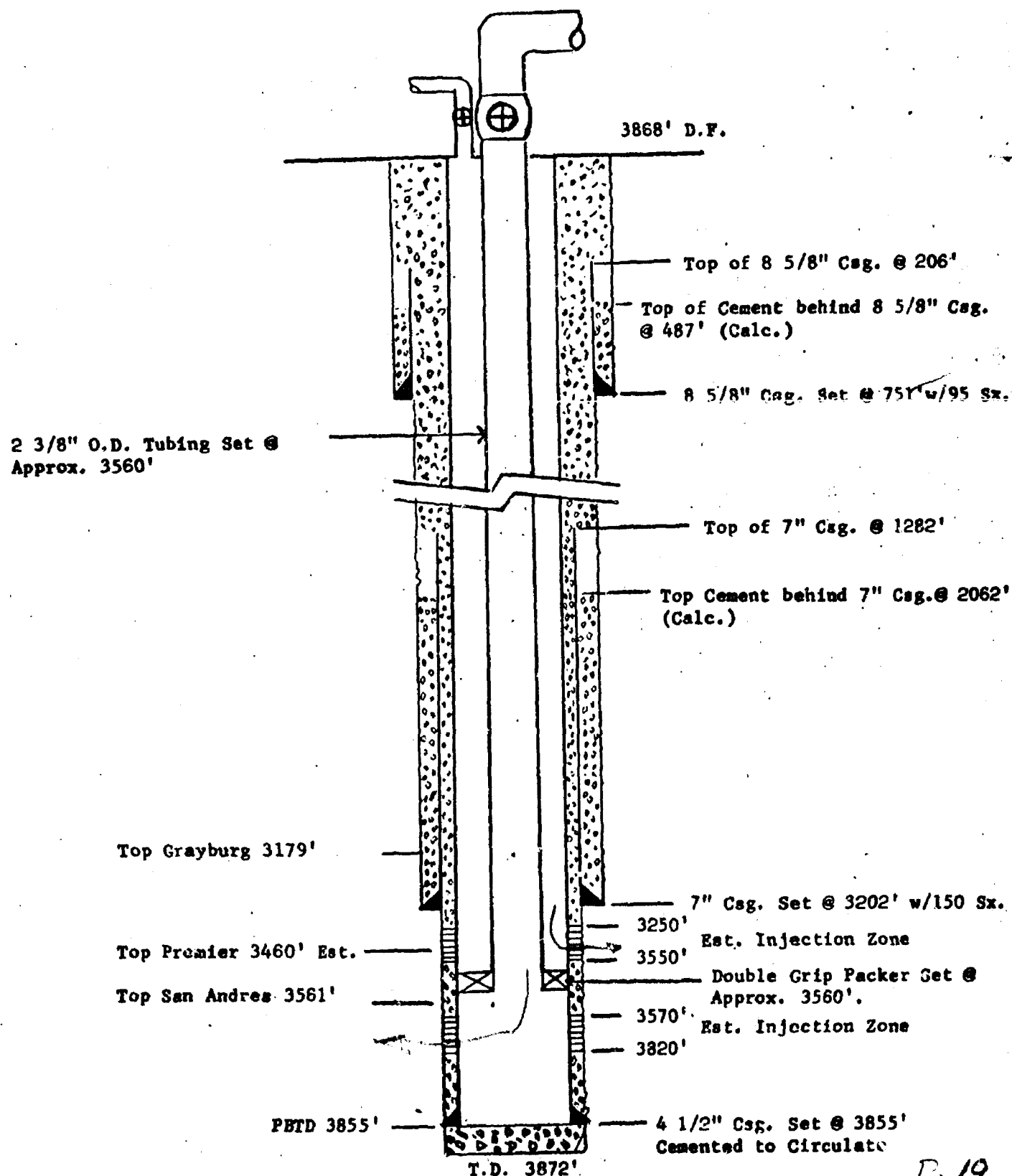
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 56
 660' FSL 1980' FWL Section 22, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



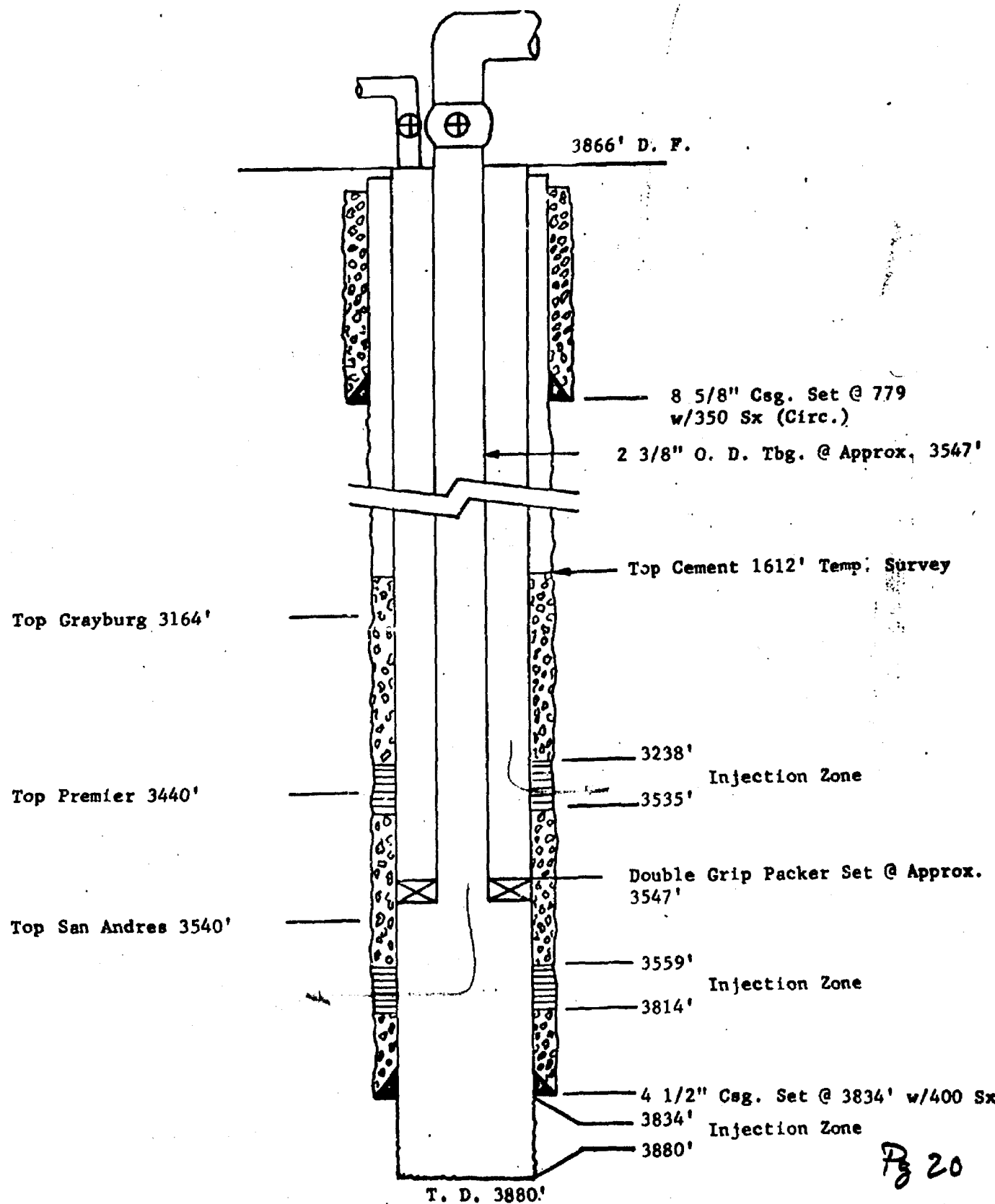
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 58
 660' FEL 570' FSL Section 22, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



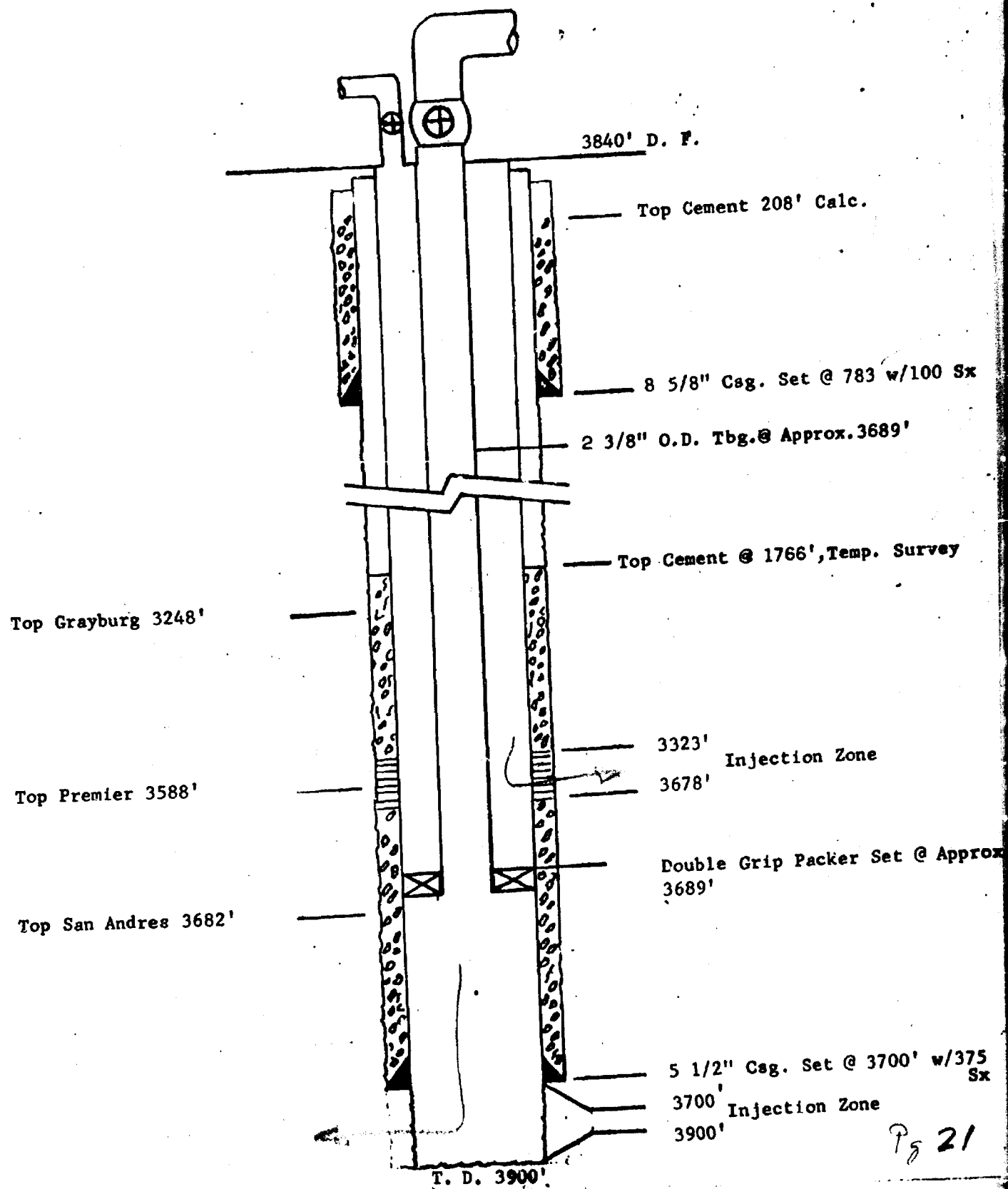
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 71
 1980' FEL 1980' FSL, Section 23, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



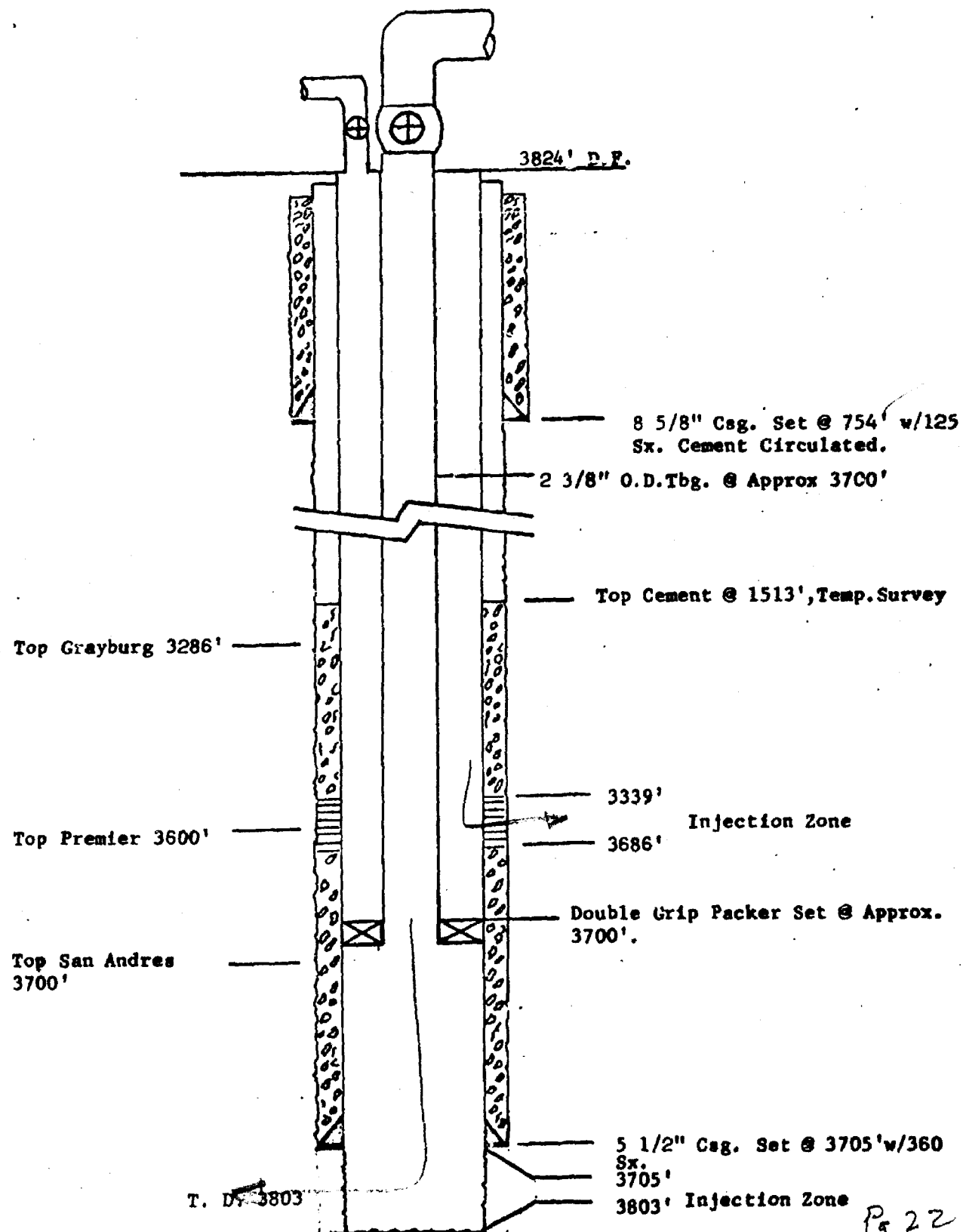
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 73
 2130' FSL & 660' FWL Section 23, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



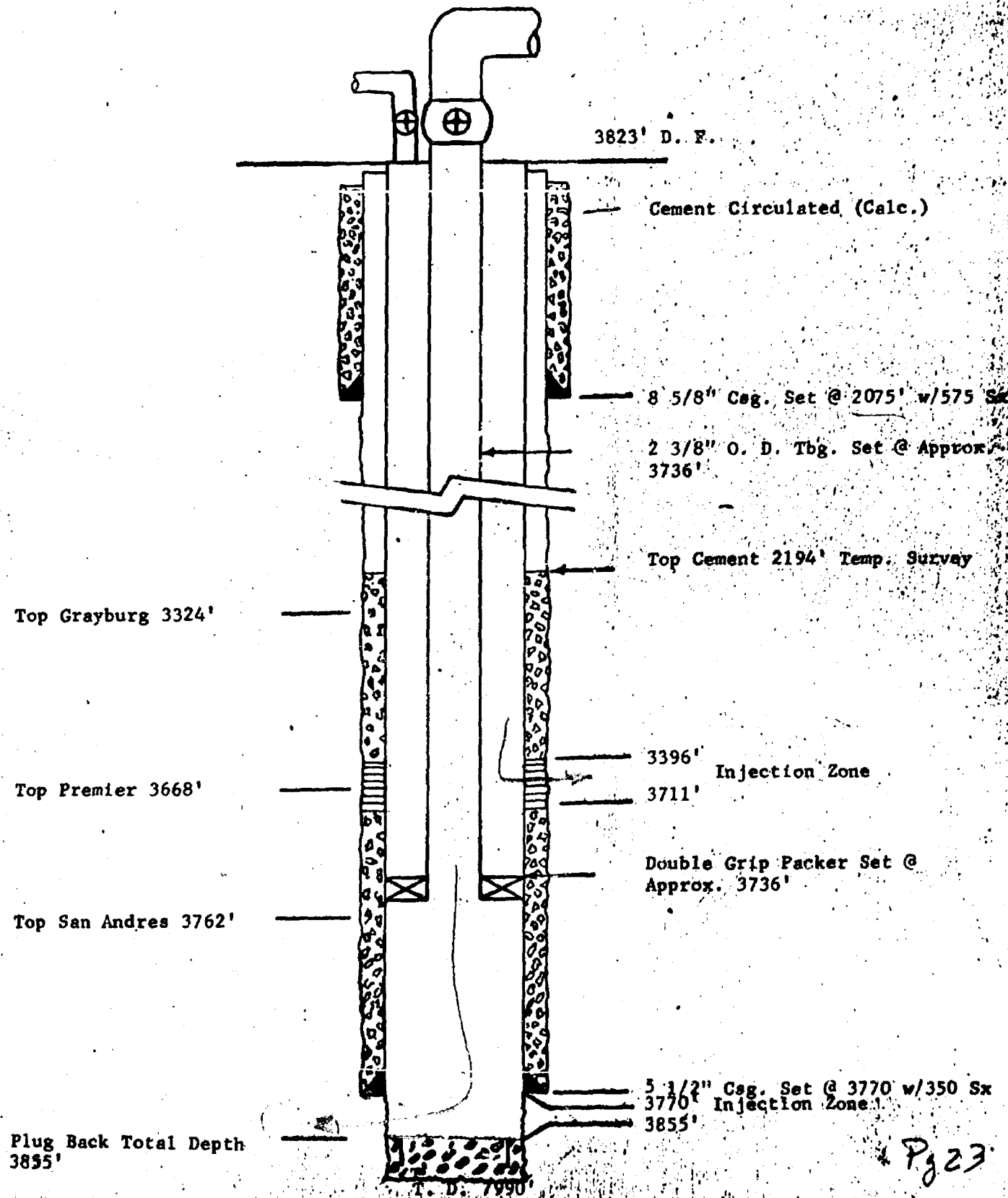
SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 83
 660' FNL 660' FWL Section 26, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 85
 660' FNL 1980' FEL, Section 27, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 96
 1980' FNL 1980' FWL Section 27, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL



SKELLY OIL COMPANY
 SKELLY UNIT WELL NO. 105
 1980' FNL 1980' FWL Section 14, T 17 S, R 31 E
 GRAYBURG JACKSON INJECTION WELL

