

CASE 3358: Application of GENERAL
AMERICAN OIL CO. OF TEXAS for a
waterflood expansion, Eddy County

ASE NO.
3358

Application,
Transcripts,
Small Exhibits
ETC.

DEC 13 1965

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF)
GENERAL AMERICAL OIL COMPANY OF TEXAS)
FOR AN ORDER AMENDING ORDER No. R-2327)
ENTERED IN CASE No. 2639 TO EXPAND SAID)
WATERFLOOD PROJECT TO ADD FOURTEEN ADDI-)
TIONAL WATER INJECTION WELLS IN THE)
GRAYBURG-KEELY ZONE OF THE SAN ANDRES)
FORMATION IN THE GRAYBURG-KEELY UNIT)
FOR THE PURPOSE OF THE SECONDARY RECOVERY)
OF OIL IN SECTIONS 23 AND 26, TOWNSHIP)
17 SOUTH, RANGE 29 EAST, EDDY COUNTY,)
NEW MEXICO.)

No. 3358

APPLICATION

COMES NOW General American Oil Company of Texas by its attorney, John F. Russell, and states:

1. Applicant General American Oil Company of Texas was authorized by Order No. R-2327 entered in Case No. 2639 on October 3, 1962, to commence a pilot waterflood project in the Grayburg-Keely Zone of the San Andres Formation in the Grayburg-Jackson Pool by the injection of water through its Keely B Well No. 13 located 1345 feet from the north line and 1295 feet from the east line of Section 26, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

2. It proposes to conduct an expanded waterflood project in a peripheral manner with the following wells being used for injection wells:

Keely B No. 4	NE $\frac{1}{4}$ NE $\frac{1}{4}$ - 26
Burch C No. 8	SE $\frac{1}{4}$ SE $\frac{1}{4}$ - 23
Burch C No. 7	NE $\frac{1}{4}$ SE $\frac{1}{4}$ - 23
Burch B No. 8	SE $\frac{1}{4}$ NE $\frac{1}{4}$ - 23
Burch B No. 7	SW $\frac{1}{4}$ NE $\frac{1}{4}$ - 23

Burch C No. 2	SE $\frac{1}{4}$ NW $\frac{1}{4}$ - 23	
Burch C No. 1	SW $\frac{1}{4}$ NW $\frac{1}{4}$ - 23	
Keely B No. 13	SE $\frac{1}{4}$ NW $\frac{1}{4}$ - 26	(Approved by Order R-2327)
Keely C No. 9	SE $\frac{1}{4}$ NW $\frac{1}{4}$ - 26	
Keely C No. 14	SW $\frac{1}{4}$ NW $\frac{1}{4}$ - 26	

In the event that the peripheral flood does not efficiently recover the oil in the reservoir, Applicant seeks permission to increase the efficiency thereof by adding the following injection wells:

Keely C No. 1	NW $\frac{1}{4}$ NW $\frac{1}{4}$ - 26
Burch B No. 4	SE $\frac{1}{4}$ SW $\frac{1}{4}$ - 23
Burch C No. 6	SW $\frac{1}{4}$ SE $\frac{1}{4}$ - 23

In the event that Stage 1 and Stage 2 combined do not efficiently recover the oil in the reservoir, Applicant seeks permission to add Stage 3 to its waterflood program by adding the following wells:

Burch B No. 5	NE $\frac{1}{4}$ SW $\frac{1}{4}$ - 23
Keely B No. 1	NW $\frac{1}{4}$ NE $\frac{1}{4}$ - 26

3. Applicant attaches hereto as Exhibit No. 1 a plat showing the location of 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.

4. Applicant attaches hereto as Exhibit No. 2 a graph showing the response in the pilot waterflood project from injection of water.

5. Applicant attaches hereto as Exhibit No. 3 a diagrammatic sketch of a typical injection well to be used showing all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated or open hole intervals, tubing

strings, including diameters and setting depths, and the type and location of the packer.

6. Applicant attaches hereto as Exhibit No. 4 the available information covering all proposed injection wells.

7. The water to be used in the waterflood project will be purchased from the Double Eagle Corporation and it is fresh water.

8. A copy of this Application, complete with all attachments, has been delivered to Mr. Frank Irby in the Office of the State Engineer, Santa Fe, New Mexico.

WHEREFORE, Applicant requests that the Commission set this matter down for hearing before its examiner, publish notice as required by law, and, after hearing, issue its order authorizing the waterflood project as aforesaid.

Respectfully submitted,

GENERAL AMERICAN OIL COMPANY
OF TEXAS

By *John H. Russell*
P. O. Drawer 640
Roswell, New Mexico 88201

Applicant's Attorney

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

February 7, 1966

C
O
P
Y
Mr. John Russell
Attorney at Law
Post Office Drawer 640
Roswell, New Mexico

Dear Sir:

Reference is made to Commission Order No. R-3026, recently entered in Case No. 3358, approving the General American Grayburg Keely Cooperative Waterflood Project.

Initial injection is to be through the eight injection wells authorized in Stage I. If the need for additional injection wells is indicated, then the three wells authorized as Stage II may be converted. If the need for additional injection wells is still indicated, the two wells authorized in Stage III may be converted. Injection into all wells is to be through internally plastic-coated tubing set in packers, with the packers to be installed approximately 50 feet above the shoe of the 5 $\frac{1}{2}$ inch liner.

As to allowable, our calculations indicate that when all of the authorized injection wells in Stage I have been placed on active injection, the maximum allowable which the project will be eligible to receive under the provisions of Rule 701-E-3 is 700 barrels per day. When the wells authorized in Stages II as well as Stage III have been placed on active injection, the maximum allowable will increase to 798 barrels per day. No allowable credit has been assigned to Units E and H of Section 26 inasmuch as the injection wells on these units are outside of the Grayburg Keely Unit Area, and there are no producing wells in the Grayburg Keely zone on the same lease outside of the Unit Area; no allowable credit has been assigned to Unit G of Section 26

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

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Mr. John Russell
Attorney at Law
Roswell, New Mexico
February 7, 1966

C because there are no producing wells in the Grayburg Keely on this forty.

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.

O 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.

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

Y Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

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

Oil Conservation Commission
Artesia, New Mexico

677-2481
GENERAL AMERICAN OIL COMPANY OF TEXAS

DISTRICT OFFICE
BOX 318
LOCO HILLS, NEW MEXICO
January 7, 1966

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

Attention: Daniel S. Nutter

Dear Sir:

As you requested on January 5, 1966 in Case 3358, I am attaching
a plat showing the Unit Letter for each well within this project.

If additional information is needed, please advise.

Very truly yours,

GENERAL AMERICAN OIL COMPANY OF TEXAS

Roy Crow
Roy Crow
District Engineer

RC/gl
Encl.

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

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

January 13, 1966

Re: Case No. 3358

Order No. R-3026

Applicant:

Mr. John Russell
Attorney at Law
P. O. Drawer 640
Roswell, New Mexico

General American Oil Company of
Texas

Dear Sir:

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

Very truly yours,

A. L. Porter, Jr.
A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Mr. Frank Irby

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 164
ORDER NO. 802

THE APPLICATION OF GRAYBURG OIL COMPANY
OF NEW MEXICO, AND WESTERN PRODUCTION
COMPANY, INC., FOR AN ORDER GRANTING
PERMISSION TO UNITIZE CERTAIN TRACTS
WITHIN THE BOUNDARIES OF THE GRAYBURG
COOPERATIVE AND UNIT AREA, IN TOWNSHIP
17 SOUTH, RANGES 29 AND 30 EAST, N.M.P.M.
IN THE GRAYBURG-JACKSON POOL OF EDDY
COUNTY, NEW MEXICO, FOR PRORATION AND
ALLOWABLE PURPOSES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on for hearing at 10:00 o'clock A. M. on the 28th day of October, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 19th day of November, 1948, the Commission, having before it for consideration the testimony adduced at said hearing and being fully advised in the premises,

FINDS:

1. That due public notice having been given, as provided by law, the Commission has jurisdiction of this cause.
2. That the acreage involved in the application is federally owned and the Supervisor of the United States Geological Survey interposes no objections to the application.
3. That heretofore, in Case No. 152, upon which hearing was held before the Commission on July 29, 1948, the Commission granted to Applicants herein, permits to drill twenty-eight unorthodox "five spot" locations, upon the leases described in this application.
4. That the creation and establishment of the tracts of land described in the application, into unitized tracts for proration and allowable purposes only, will enable Grayburg Oil Company of New Mexico and Western Production Company, Inc. to produce the wells upon the respective proposed unitized tracts at a more efficient rate of withdrawal; that a greater ultimate recovery of oil will be obtained from each of said unitized tracts, and that such method of operation will be in the interest of conservation, prevent waste and enable applicants to produce substantial quantities of oil that would not otherwise be recovered.

IT IS THEREFORE ORDERED, that the Application of Grayburg Oil Company of New Mexico and Western Production Company, Inc., for an order authorizing the unitization

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CASE NO. 164
ORDER NO. 802

for proration and allowable purposes of the tracts therein described, be and the same is hereby granted and approved, and it is further ordered that the following tracts of land located in the Grayburg-Jackson Pool of Eddy County, New Mexico are hereby established as unitized tracts for proration and allowable purposes:

GRAYBURG OIL COMPANY OF NEW MEXICO UNITS:

UNIT G-1, described as S/2 S/2 Section 18,
N/2 and N/2 S/2 Section 19, Township 17
South, Range 30 East, N.M.P.M.

UNIT G-2, described as S/2 SW/4 Section
19, SW/4 Section 30, Township 17 South,
Range 30 East, N.M.P.M.

UNIT G-3, described as SW/4 Section 23,
Township 17 South, Range 29 East, N.M.P.M.

UNIT G-4, described as N/2 NW/4, SW/4 NW/4,
N/2 SW/4, N/2 SE/4 and NE/4 Section 24,
Township 17 South, Range 29 East, N.M.P.M.

UNIT G-5, described as S/2 SW/4 Section 24,
N/2 NW/4 Section 25, E/2 Section 26, Township
17 South, Range 29 East, N.M.P.M.

WESTERN PRODUCTION COMPANY, INC. UNITS:

UNIT W-1, described as S/2 SE/4 Section 19,
N/2 NE/4 Section 30, Township 17 South,
Range 30 East, N.M.P.M.

UNIT W-2, described as SE/4 Section 23,
Township 17 South, Range 29 East, N.M.P.M.

UNIT W-3, described as W/2 Section 26,
Township 17 South, Range 29 East, N.M.P.M.

UNIT W-4, described as S/2 SE/4 Section 24,
S/2 NW/4, SW/4 and E/2 Section 25, Township
17 South, Range 29 East, N.M.P.M.

IT IS FURTHER ORDERED, and Applicants are hereby authorized to produce from each unitized tract, hereinabove described, the total allowable production, as fixed by the Commission for the total number of developed forth acre proration units comprising such unitized tract, and the Applicants are hereby authorized to produce the total allowable, so fixed by the Commission for each unitized tract, from all of the wells located upon or that may be hereafter drilled upon such unitized tract, producing from the Grayburg-Jackson Pay.

IT IS FURTHER ORDERED, that no well located upon any unitized tract shall be permitted to produce at a rate in excess of the top allowable as fixed by the Commission.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

LAW OFFICES OF
JOHN F. RUSSELL
SUITE 1010 SECURITY NATIONAL BANK BUILDING
P. O. DRAWER 640
ROSWELL, NEW MEXICO 88201

TELEPHONE 622-4641
AREA CODE 505

December 10, 1965

DEC 13 1965

Case 335-8

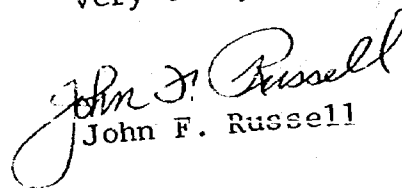
Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Porter:

I transmit herewith the application of General American Oil Company of Texas for an expansion of its pilot waterflood project authorized by Order R-2327 entered in Case No. 2639.

The various exhibits referred to in the application are in the process of being completed and, upon completion, I shall promptly send them to you as well as copies to the State Engineer.

Very truly yours,


John F. Russell

JFR:np

Enclosure

DOCKET MARKED

Date 12-23-65

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 5, 1966

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 3358: Application of General American Oil Company of Texas for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Burch-Keely Waterflood Project, authorized by Order No. R-2327 in the Grayburg-Jackson Pool, by the conversion to water injection, in stages, of from 10 to 15 wells in Sections 23 and 26, Township 17 South, Range 29 East, Eddy County, New Mexico.

CASE 3359: Application of Sinclair Oil & Gas Company for a dual completion, non-standard location, non-standard gas proration unit, and an exception to Rule 104 C I, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Fren Oil Company Well No. 21 to produce oil from the Cedar Lake-Abo Pool and to produce gas from an undesignated Morrow gas pool through parallel strings of tubing. Applicant further seeks approval of a 200-acre non-standard gas proration unit for said well comprising the E/2 SW/4, SW/4 SE/4, and E/2 SE/4 of Section 19, Township 17 South, Range 31 East, for said well which is located at an unorthodox gas well location 560 feet from the South line and 3350 feet from the East line of said Section 19. Applicant further seeks an exception to Commission Rule 104 C I for said well which is located closer than 660 feet to another well producing from the Abo formation on the same 40-acre tract.

CASE 3360: Application of L. R. French, Jr. for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete his Aztec Uncle Well No. 1 located in Unit C of Section 28, Township 18 South, Range 33 East, Lea County, New Mexico, to produce oil from the Strawn formation through the casing-tubing annulus and to produce gas from the Morrow formation through tubing. In the alternative, applicant seeks authority to dually complete the well with a single string of tubing and to commingle the Strawn oil and Morrow gas in the wellbore by means of a dual-flow choke-assembly.

CASE 3152 (Reopened)

In the matter of Case No. 3152 being reopened pursuant to the provisions of Order No. R-2821, which order established 80-acre spacing units for the Osudo-Wolfcamp Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 3153 (Reopened)

In the matter of Case No. 3153 being reopened pursuant to the provisions of Order No. R-2822, which order established 80-acre spacing units for the Osudo-Strawn Pool, Lea County, New Mexico,

January 5, 1966 Examiner Hearing

for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 3246 (Reopened)

In the matter of Case No. 3246 being reopened pursuant to the provisions of Order No. R-2935, which order established special rules for the Mesa-Queen Pool, Lea County, New Mexico, for production of oil and gas wells in said pool, including classification of oil wells and gas wells, spacing units for oil wells and gas wells, and the establishment of a gas-liquid ratio limitation of 5,000 cubic feet of gas per barrel of oil. All interested parties may appear and show cause why the special rules should be continued in effect.

CASE 2720 (Reopened)

In the matter of Case No. 2720 being reopened pursuant to the provisions of Order No. R-2397-B which continued the original order for an additional year, establishing special rules governing the production of oil and gas wells in the Double-X Delaware Pool, Lea County, New Mexico, including classification of wells as gas wells when the gas-liquid hydrocarbon ratio exceeds 30,000 to one.

CASE 3361: Application of Tidewater Oil Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in its A. B. Coates "C" Well No. 15 located in Unit O of Section 24, Township 25 South, Range 37 East, Justis Field, Lea County, New Mexico, through a perforated interval below 8,000 feet.

CASE 3353: Application of Tesoro Petroleum Corporation to amend Order No. R-2807, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks an amendment to Order No. R-2807, which authorized a waterflood project in the Hospah Unit Area, to permit the production of oil from previously designated water injection wells, to approve unorthodox locations for additional producing wells, and to authorize additional injection wells, all in Section 36, Township 18 North, Range 9 West, McKinley County, New Mexico.

CASE 2945 (Reopened)

In the matter of Case No. 2945 being reopened pursuant to the provisions of Order No. R-2623, which order established 640-acre spacing units for the Antelope Ridge-Devonian Gas Pool, Lea County, New Mexico, for a period of two years. All interested parties may appear and show cause why said pool should not be developed on 160-acre or 320-acre spacing units.

January 5, 1966 Examiner Hearing

CASE 3350 (Continued and readvertised)

Application of International Oil & Gas Corporation for the creation of two new oil pools and for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Bone Spring production and a new oil pool for Wolfcamp production in Section 21, Township 18 South, Range 32 East, Lea County, New Mexico, and for the establishment of special rules for each of said pools including provision for 80-acre proration units.

CASE 3362: Application of Carter Foundation Production Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Queen formation through five wells located at unorthodox locations in Sections 34 and 35, Township 23 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico.

DEC 13 1965

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF)
GENERAL AMERICAL OIL COMPANY OF TEXAS)
FOR AN ORDER AMENDING ORDER No. R-2327)
ENTERED IN CASE No. 2639 TO EXPAND SAID)
WATERFLOOD PROJECT TO ADD FOURTEEN ADDI-)
TIONAL WATER INJECTION WELLS IN THE)
GRAYBURG-KEELY ZONE OF THE SAN ANDRES)
FORMATION IN THE GRAYBURG-KEELY UNIT)
FOR THE PURPOSE OF THE SECONDARY RECOVERY)
OF OIL IN SECTIONS 23 AND 26, TOWNSHIP)
17 SOUTH, RANGE 29 EAST, EDDY COUNTY,)
NEW MEXICO.)

No. 3358

APPLICATION

COMES NOW General American Oil Company of Texas by its attorney, John F. Russell, and states:

1. Applicant General American Oil Company of Texas was authorized by Order No. R-2327 entered in Case No. 2639 on October 3, 1962, to commence a pilot waterflood project in the Grayburg-Keely Zone of the San Andres Formation in the Grayburg-Jackson Pool by the injection of water through its Keely B Well No. 13 located 1345 feet from the north line and 1295 feet from the east line of Section 26, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

2. It proposes to conduct an expanded waterflood project in a peripheral manner with the following wells being used for injection wells:

Stage I

Keely B No. 4	NE $\frac{1}{4}$ NE $\frac{1}{4}$ - 26
Burch C No. 8	SE $\frac{1}{4}$ SE $\frac{1}{4}$ - 23
Burch C No. 7	NE $\frac{1}{4}$ SE $\frac{1}{4}$ - 23
Burch B No. 8	SE $\frac{1}{4}$ NE $\frac{1}{4}$ - 23
Burch B No. 7	SW $\frac{1}{4}$ NE $\frac{1}{4}$ - 23

Burch C No. 2	SE $\frac{1}{4}$ NW $\frac{1}{4}$ - 23	
Burch C No. 1	SW$\frac{1}{4}$NW$\frac{1}{4}$ - 23	
Keely B No. 13	SE$\frac{1}{4}$NW$\frac{1}{4}$ - 26	(Approved by Order R-2327)
Keely C No. 9	SE $\frac{1}{4}$ NW $\frac{1}{4}$ - 26	
Keely C No. 14	SW $\frac{1}{4}$ NW $\frac{1}{4}$ - 26	

In the event that the peripheral flood does not efficiently recover the oil in the reservoir, Applicant seeks permission to increase the efficiency thereof by adding the following injection wells:

Stage II

Keely C No. 1	NW $\frac{1}{4}$ NW $\frac{1}{4}$ - 26
Burch B No. 4	SE $\frac{1}{4}$ SW $\frac{1}{4}$ - 23
Burch C No. 6	SW $\frac{1}{4}$ SE $\frac{1}{4}$ - 23

In the event that Stage 1 and Stage 2 combined do not efficiently recover the oil in the reservoir, Applicant seeks permission to add Stage 3 to its waterflood program by adding the following wells:

Stage III

Burch B No. 5	NE $\frac{1}{4}$ SW $\frac{1}{4}$ - 23
Keely B No. 1	NW $\frac{1}{4}$ NE $\frac{1}{4}$ - 26

3. Applicant attaches hereto as Exhibit No. 1 a plat showing the location of 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.

4. Applicant attaches hereto as Exhibit No. 2 a graph showing the response in the pilot waterflood project from injection of water.

5. Applicant attaches hereto as Exhibit No. 3 a diagrammatic sketch of a typical injection well to be used showing all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated or open hole intervals, tubing

strings, including diameters and setting depths, and the type and location of the packer.

6. Applicant attaches hereto as Exhibit No. 4 the available information covering all proposed injection wells.

7. The water to be used in the waterflood project will be purchased from the Double Eagle Corporation and it is fresh water.

8. A copy of this Application, complete with all attachments, has been delivered to Mr. Frank Irby in the Office of the State Engineer, Santa Fe, New Mexico.

WHEREFORE, Applicant requests that the Commission set this matter down for hearing before its examiner, publish notice as required by law, and, after hearing, issue its order authorizing the waterflood project as aforesaid.

Respectfully submitted,

GENERAL AMERICAN OIL COMPANY
OF TEXAS

By John D. Russell
P. O. Drawer 640
Roswell, New Mexico 88201

Applicant's Attorney

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. 2639
Order No. R-2327

APPLICATION OF GENERAL AMERICAN OIL
COMPANY OF TEXAS FOR APPROVAL OF 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 September 11, 1962, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 3rd day of October, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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, General American Oil Company of Texas, is the operator of Sections 23 and 26, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

(3) That the applicant requests approval of a pilot waterflood project in the Grayburg-Jackson pool on the above-described lands with the injection of water into the Grayburg-Keely zone of the San Andres formation through its Keely "B" Well No. 13, located in Unit H, Section 26, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

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

(5) That approval of the subject application should result in the recovery of oil which otherwise might not be recovered,

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CASE No. 2639
Order No. R-2327

and will neither cause waste nor impair correlative rights; provided, however, that unless agreed to by all parties, the transfer of allowables across lease lines where royalty ownership is diverse should not be authorized.

IT IS THEREFORE ORDERED:

(1) That the applicant, General American Oil Company of Texas, is hereby authorized to institute a pilot waterflood project in the Grayburg-Keely zone of the San Andres formation in the Grayburg-Jackson Pool by the injection of water through its Keely "B" Well No. 13, located 1345 feet from the North line and 1295 feet from the East line of Section 26, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

(2) That the waterflood project shall be governed by Rule 701 including the allowable provisions thereof.

PROVIDED HOWEVER, That unless otherwise agreed to by all parties and evidence thereof furnished the Commission, the transfer of allowables within the project area of this waterflood shall be authorized only insofar as the transfer is made between wells having common royalty ownership.

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

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

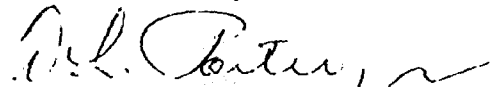
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



EDWIN L. MECHEM, Chairman



E. S. WALKER, Member



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

S E A L

esr/

LAW OFFICES OF
JOHN F. RUSSELL
SUITE 1010 SECURITY NATIONAL BANK BUILDING
P O DRAWER 640
ROSWELL, NEW MEXICO 88201

TELEPHONE: 622-4641
AREA CODE 505

December 27, 1965

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

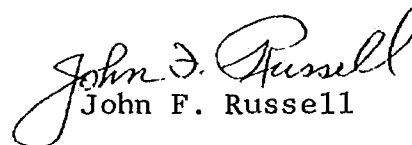
RE: Case No. 3358 General
American Oil Company of
Texas

Dear Mr. Porter:

I transmit herewith in triplicate four exhibits
which will be offered in the above numbered case.

A copy of these exhibits have been furnished to
the State Engineer.

Very truly yours,


John F. Russell

JFR:np

Enclosures

cc: Mr. Frank Irby, State Engineers Office

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. 3358
Order No. R-3026

APPLICATION OF GENERAL AMERICAN OIL
COMPANY OF TEXAS FOR A WATERFLOOD
EXPANSION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 5, 1966, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 13th day of January, 1966, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, General American Oil Company of Texas, seeks permission to expand its waterflood project in the Grayburg-Jackson Pool, authorized by Order No. R-2327, by the conversion to water injection, in stages, of from 10 to 13 wells in Sections 23 and 26, Township 17 South, Range 29 East, NMEH, 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 expansion of the waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

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CASE No. 3350
Order No. R-3026

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

IT IS THEREFORE ORDERED:

(1) That the applicant, General American Oil Company of Texas, is hereby authorized to expand its waterflood project in the Grayburg-Jackson Pool, authorized by Order No. R-2327, by converting to water injection into the Grayburg-Keely zone of the San Andres formation, in stages, the following-described wells in Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico:

<u>WELL</u>	<u>LOCATION</u>
STAGE I	
Burch B No. 7	SW/4 NE/4 of Section 23
Burch B No. 8	SE/4 NE/4 of Section 23
Burch C No. 2	SE/4 NW/4 of Section 23
Burch C No. 7	NE/4 SE/4 of Section 23
Burch C No. 8	SE/4 SE/4 of Section 23
Keely B No. 4	NE/4 NE/4 of Section 26
Keely C No. 9	SE/4 NW/4 of Section 26
Keely C No. 14	SW/4 NW/4 of Section 26
STAGE II	
Burch B No. 4	SE/4 SW/4 of Section 23
Burch C No. 6	SW/4 SE/4 of Section 23
Keely C No. 1	NW/4 NW/4 of Section 26
STAGE III	
Burch B No. 5	NE/4 SW/4 of Section 23
Keely B No. 1	NW/4 NE/4 of Section 26

(2) That the subject waterflood project is hereby designated the Grayburg-Keely Cooperative Waterflood Project and 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 expanded waterflood project herein authorized shall be submitted to the Commission in

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CASE No. 3358

Order No. R-3026

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 H. Campbell
JACK H. CAMPBELL, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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

SEE/

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PAGE 1

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 5, 1966

EXAMINER

HEARING

IN THE MATTER OF:)
Application of General American Oil Company)
of Texas for a waterflood expansion, Eddy)
County, New Mexico. Applicant, in the above-)
styled cause, seeks authority to expand its)
Burch-Keely Waterflood Project, authorized by)
Order No. R-2327 in the Grayburg-Jackson Pool)
by the conversion to water injection, in)
stages, of from 10 to 15 wells in Sections 23)
and 26, Township 17 South, Range 29 East,)
Eddy County, New Mexico.)

Case No. 3358

BEFORE:

Daniel S. Nutter, Chief Engineer
J. D. Ramey, Supervisor and Oil and Gas Inspector

TRANSCRIPT OF HEARING

MR. DURRETT: Application of General American Oil Company of Texas for a waterflood expansion, Eddy County, New Mexico.

MR. RUSSELL: John F. Russell, Roswell, New Mexico, and I have one witness, Mr. Roy Crow.

(Witness sworn.)

R O Y C R O W, a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. RUSSELL:

Q Will you please state your name, address, by whom you're employed, and in what capacity?

A My name is Roy Lee Crow. I live at 1504 Sears, Artesia, New Mexico. I'm employed by General American Oil Company of Texas, the New Mexico District, located in Loco Hills, in the capacity of District Engineer.

Q And you have previously qualified to testify before this Commission and Examiner?

A I have.

Q Are you familiar with the application of General American Oil Company of Texas--

A I am.

Q ---in Case Number 3357? It's my understanding that what you are attempting to do is expand the project authorized by an

Order R-2327, entered in this Case Number 2639, is that correct?

A This is correct.

Q And what you are proposing to do is to expand by means of a peripheral flood in a possible three stages, is that correct?

A This is correct.

(Whereupon, Applicant's Exhibits 1, 2, 3, 4, 5, and 6 marked for identification.)

Q Referring you to what has been marked as Applicant's Exhibit Number 1, will you explain to the Examiner what this shows?

A This is a plat of two mile radius of the pilot area. It shows the three plans which we have proposed to possibly flood this Keeley Zone under. Plan One as marked in blue, is our original intention of a peripheral pattern: Plan Two, which is marked in red, would be an additional conversion of three wells to modify this peripheral to a slightly closer spacing, and should this not be sufficient to recover the oil, Plan Three marked in green would show the conversion of two additional wells which would give us a more pattern type flood including four areas.

Q Referring you to the area to the Northwest portion of your flood area in which it shows four wells which would be indicated in your Plan One, actually the three wells to the

West of your area are Sunray DX wells, are they not?

A This is true.

Q And your one well there on the other corner was authorized for injection under Sunray DX's prior application?

A This is correct.

Q Other than those, the remaining wells which are circled in blue, are your wells which you propose to inject?

A This is true.

Q Would you point out what well is presently being used as an injection well under your prior order?

A In the Southeast portion of the unit area there you will note a Number 13 Well, Keeley "B" 13, which is the pilot injection well and is currently injecting at this time.

Q How long has that been on injection, do you know?

A Since February of 1963.

Q Now, I want to call to your attention this area which is outlined with hash marks. Is that the area covered by proposed flood?

A This is true.

Q And is that also the boundaries of a participating Federal unit which has been approved?

A Yes, sir.

Q What effect has the conversion of that Number 13 well had upon the production? I'll refer you to what has been

marked as Applicant's Exhibit Number 2 for this purpose.

A Exhibit Number 2 is a graph showing the Keeley production from the date of discovery, Keeley "C" 27, in 1948, to the present time. The noteworthy part of this exhibit is the last two years of flattening and slight upturning in points of the unit production as a whole above the extrapolated decline.

Q Now, this indicates that the production from the unit as a whole, this decline, has been stopped or leveled out, is that correct?

A This is correct.

Q But there's been no significant response in any one of the wells?

A That is true, no one individual well.

Q And what is the reason for going to the peripheral at this time? In your opinion what effect will that have?

A From the basis of Exhibit 2 where the unit production as a whole has flattened, we believe that the injection into 13 has slightly repressured the area, and that the peripheral type flood would sufficiently recover all which will otherwise not be recovered.

Q And Stages Two and Three are merely proposed in the event the initial plan does not appear to effectively recover such oil, is that correct?

A This is correct.

Q All right. Now, I will hand you what has been identified as Applicant's Exhibit Number 3, and ask you what that is?

A Exhibit 3 is a type log showing the typical conversion to injection of these wells. The casings as shown on this well are similar in all wells; 8 5/8" production string, and a 5 1/2" liner. One thing outlined from this, the top of the cement did come back to the lower productive stringer of the San Andres, so the 5 1/2 is cemented from the San Andres pay completely to the bottom, and it shows that 2" tubing will be used. It will be plastic coated and will be run with a Totem Tension type packer set approximately 50 feet inside the 5 1/2" liner.

Q And your injection will be through that plastic coated tubing?

A This is correct.

Q Although this particular diagram refers to a particular well, it is what you propose as a typical completion for conversion purposes?

A Yes.

Q Now, I refer you to what has been marked as Applicant's Exhibit 4 and ask you what that reflects?

A Exhibit 4 is a detailed listing of all pertinent data

on all wells which are proposed in either Plan One, Two or Three to be converted to water injection showing the total depth; the elevation; the location; the surface casing; production stringing; the liner, and any stimulation work which was performed on the Keeley Zone.

Q Now, does this Exhibit Number 4 cover all of your proposed injection wells?

A It covers all proposed injection wells except Keeley "B" 13, which is approved and currently injecting.

Q All right. Now, I'll refer you to what's been marked as Applicant's Exhibit 5, and ask you what that represents?

A Exhibit 5 is a photostatic portion of all available logs on wells to be converted to injection. The only two not available are Keeley "C" 1, and Keeley "C" 14.

Q Is there anything in particular with reference to those well logs that you feel essential to bring out at this time?

A I don't believe so.

Q All right. Now, you have previously stated that this entire flood area is within a Federal Unit. Have you secured approval for the proposed flood operation? I'll hand you what has been marked as Applicant's Exhibit 6 and ask you if that is a letter of approval from the Department of

Interior, United States Geological Survey?

A Exhibit Number 6 is a plan of operation covering the year January 1, '66 through December the 31st, '66, which points out our intentions for this year which includes the conversion of three wells at this time. But it did state that we would seek the Commission's approval for the ultimate flood plan to the entire unit area, and it was approved by John Anderson.

Q Now, under the unit agreement for this unit, is the production allocated on the basis of acreage, solely?

A This is true. It's solely on an acreage basis.

Q If this application is granted, do you propose to use fresh water from the Caprock, or the Double Eagle Corporation which are being used in the pilot project?

A Yes, sir.

Q Were these exhibits prepared by you or under your supervision and direction?

A They were.

MR. RUSSELL: I at this time offer Applicant's Exhibits 1 through 6.

(Whereupon, Applicant's Exhibits
1 through 6 offered into evidence.)

MR. NUTTER: If there is no objection the exhibits will be admitted into evidence.

(Whereupon, Applicant's Exhibits 1 through 6 admitted into evidence.)

MR. RUSSELL: I have no further questions of this witness.

MR. NUTTER: Any questions of Mr. Crow?

CROSS-EXAMINATION

BY MR. IRBY:

Q Mr. Crow, are you going to recirculate the produced water in this flood?

A At the time this became a sufficient quantity we probably would recycle the water.

Q Now, the testimony you gave with respect to the cementing of the liner and the setting of the tubing and packer, is that testimony applicable to all of the wells?

A Yes, it would be as one could refer to the Exhibit 4 and I could submit the actual tops of the cements on all but two wells, which was omitted from this detailed listing, but all wells would be very typical to this type log of Keeley "B" 4.

Q To make it a little clearer to me, is the cement on each of the liners above the shoe of the 7", or the production casing?

A No, it is not. The 7" casing is set on top of the San Andres production and all these wells were completed as an open hole and they produced from the upper San Andres

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formation before being completed in the Keeley. And at the time of completion the liners were run and cemented and in all cases the cement returned to the lower portion of the San Andres pay, but it did not overlies the San Andres pay.

Q Then the liner is exposed to whatever may be in the San Andres?

A This is true.

Q Then maybe I can get at this another way. Is this packer on the end of the tubing in each instance set below the bottom of the San Andres?

A The packer would be set approximately 50 feet from the bottom of the liner which is as in the type log--let's see, it's 200 feet below the San Andres.

MR. NUTTER: Below the top of the San Andres?

A Below the top of the San Andres.

Q (By Mr. Irby) Below the top. Well, now, is the San Andres from that point on down impermeable?

A There is an interval in between the lower San Andres and the Keeley. At this time I could not state an average depth, but there is considerable length there as will be noted on the logs, that is not permeable.

Q And we have cement between that formation and the liner?

A That is true.

Q Now, I believe your statement was that the packers would be set approximately 50 feet above the bottom of the liner?

A Bottom of the 5 1/2, approximately 50 feet inside the 5 1/2.

MR. IRBY: Thank you.

CROSS-EXAMINATION

BY MR. NUTTER:

Q Mr. Crow, were the liners in all of the wells cemented with 35 sacks except one, it had 41 sacks, but there's no figure shown on one of the wells; that would be the Burch "C" 7 on the second page. How much cement was used on that liner?

A Well, this is omitted, I'm sorry, at this time. I'm sure it was probably 35 sacks, which I could supply you with later.

MR. RUSSELL: Do you have the top of the cement?

A The top of the cement is at 2746 by temperature survey. This was omitted, which I stated that I could give on all but two wells.

Q (By Mr. Nutter) Would that be on the 7" as well as the 5 1/2?

A No. The temperature survey was only on the 5 1/2

liner.

Q You don't have any on the 7"?

A Just what we could calculate.

Q Could you run through them and give us the tops on liners?

A Exhibit 4?

Q Yes, sir.

A Burch "B" Number 4, the top of the cement on the liner is 2750; Burch "B" Number 5, 2740; Burch "B" Number 7, 2810; Burch "B" Number 8, 2835; Burch "C" Number 1, is one that's not available; Burch "C" Number 2, 2810; --

Q 2817?

A 2817. Burch "C" Number 6, 2620; Burch "C" Number 7, 2746; Burch "C" Number 8, 2760.

Q What was that again?

A Burch "C" Number 8. That should be the last one on the third page, 2760. Keeley "B" Number 1, 2915; Keeley "B" Number 4, 2935; Keeley "C" Number 1, 2840; Keeley "C" Number 9, not available; Keeley "C" Number 14, not available; I'm sorry, there was three.

Q Let's see, I've got two tops for one well. I must have written it down wrong.

A Which well?

Q I put down 2835 as well as 2760 for "C" 8. Probably

one of those should be "B" 8.

A 2860 is the Burch "C" 8.

Q Yes.

A And Burch "B" 8 is 2735.

Q That is where I was wrong. And the "C" 1 was one that was unavailable?

A Burch "C" 1.

Q And "C" 9 and "C" 14?

A This is correct.

Q Now, in order to compute the top of the cement or try to compute the top of the cement on the 7", what size of a hole was drilled on that?

A It would be an 8" hole.

Q In all cases?

A In all cases.

Q Now, you have your Number 13 Well on injection at the present time, and it has been for some three years?

A This is correct.

Q Has Sunray started injection on the Dodd Lease as yet?

A They have not.

Q Has your Number 1 Burch Well been authorized as yet?

A Under their Order 3012.

Q Your well was authorized?

A Yes.

Q We don't need to include that?

A This is correct.

Q And your Number 13 has been authorized?

A This is correct.

Q Now, what did you have in mind, Mr. Crow? Did you have in mind to seek authority to put all of these wells on injection at this time, or were you proposing that you just be authorized Plan One, and then later on if you needed the additional wells to get administrative approval for those, or just how did you contemplate?

A We would like to have the Plan One through Three approved.

Q Under one Order?

A Under one Order.

Q Now, this has been covered by this cooperative unit agreement which was approved by the U. S. Geological Survey. Are there any overriding royalty owners or any other interest owners than the U.S.G.S.?

A Five percent overriding.

Q Have those overriders been unitized?

A Yes.

Q And they executed the agreement?

A This actual unit agreement has been in effect since 1944.

Q We could consider this one lease. Its already been unitized?

A Yes, since its been established.

Q I see. Now, it looks like we have some infill drilling in some of these 40 acre tracts. You may not know which 40. For instance these in the Southwest quarter of Section 23. Which 40 would that Number 14 be in?

A At this time I couldn't say, definitely.

Q Mr. Crow, could you find out the 40 acre tract attributable to each of these infill wells and let us know so that we'll be able to compute the maximum allowable this project will receive? I presume that Number 14, right there on the line, is a well, too, isn't it?

A Yes, that's Keeley "C" 14.

Q If you can just let us know what 40 acre tract each of the various wells is in?

A Yes.

MR. NUTTER: Any other questions of Mr. Crow?

CROSS-EXAMINATION

BY MR. DURRETT:

Q Mr. Crow, how many wells are we talking about, now, as far as the total of all three stages?

A No injection?

Q Yes.

A Maximum of 14 wells.

Q Fourteen?

A Yes.

Q And you are seeking authority to convert by stages, and I assume that you, as far as your authority you're seeking, you would not want authority to put on Stage Two until you completed Stage One, would that be correct?

A Stage Two would only be put into effect at such time as Stage One would not be close enough spacing to sufficiently recover the oil.

Q But in the event you complete Stage One before you started on Stage Two, you would complete each one in stages?

A Yes.

Q Would you state what you're anticipated rates of injection will be in the pressure?

A Until we receive fill-up, or begin to encounter pressure, probably 350 barrels per day per well. At the time fill-up and pressure was encountered, the rates would be determined more by pressure than anything else due to staying below any break down pressure which might be determined.

Q What are the pressures you're anticipating as far as being able to handle on injection.

A At this time, from what testing we've done, we do not feel we would want to exceed 750 pounds. We anticipate that

even after fill-up we can get 350 barrels a day at approximately 1500.

Q Would you give us your projected primary and secondary recovery if you have made such a projection?

A I refer you to Exhibit Number 6 in which I did state that to date the cumulative production from the Grayburg-Keeley Zone is 1,124,574 barrels of oil. I have not at this time tabulated to determine the remaining primary, but all wells--well, the average on the 23 wells is slightly below 8 barrels a day, so a great portion of the primary reserve has been reserved at this time, and we feel that one time primary would be an adequate figure to distribute to secondary recovery.

MR. DURRETT: Thank you.

RE-CROSS-EXAMINATION

BY MR. NUTTER:

Q Mr. Crow, Plan One involves 10 wells, correct?

A This is correct.

Q But two of those have already been approved?

A This is correct.

Q So we need 8 wells in that one. Plan Two involves three wells and Plan Three involves two wells?

A Correct.

MR. NUTTER: Witness may be excused. Does anyone have



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anything they wish to offer in Case 3358? The Commission will take the case under advisement and call Case 3359.

I N D E X

WITNESS	PAGE
ROY CROW	
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E X H I B I T S

<u>NUMBER</u>	<u>MARKED FOR IDENTIFICATION</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Applt's. 1	3	8	9
Applt's. 2	3	8	9
Applt's. 3	3	8	9
Applt's. 4	3	8	9
Applt's. 5	3	8	9
Applt's. 6	3	8	9

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STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

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

Witness my Hand and Seal this 17th day of May, 1965.

B. J. Davis
NOTARY PUBLIC

My Commission Expires:

March 13, 1969.

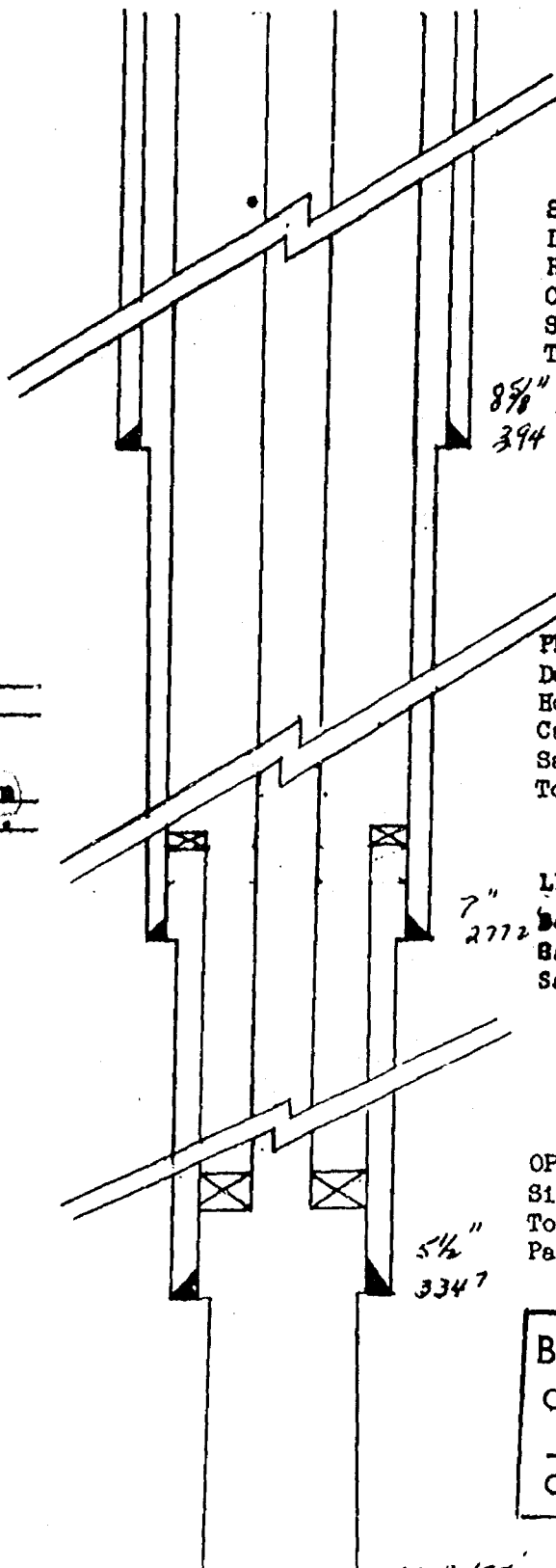
I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3358, heard by me on 1/5, 1966.

[Signature], Examiner
New Mexico Oil Conservation Commission

TYPE LOG

GENERAL AMERICAN OIL COMPANY OF TEXAS
SCHEMATIC DIAGRAM OF
PROPOSED INJECTION WELL

Lease and Well No.: Keely "B" #4
Location: 660 feet from North line and
660 feet from East line of
Section 26 TWP 17-S RGE 29-E
N.M.P.M. Eddy County, New Mexico



SURFACE CASING

Depth Set: 394'
Hole Size: 10"
Casing Size & Wt.: 8 5/8" 26.6
Sacks Cement: 50
Top of Cement: _____

8 5/8"
394

TUBING - PLASTIC COATED

Depth Set: 3375' Approx.
Size, Wt. & Type: 2" 4.76

PACKER

Make & Type: Totom Tension
Depth Set: 3375' Approx.

PRODUCTION CASING

Depth Set: 2772'
Hole Size: 8"
Casing Size & Wt.: 7" 20.6
Sacks Cement: 100
Top of Cement: _____

7"
2772

LINER

Depth Set: 2702-3347
Basing Size & Wt.: 5 1/2" 14 & 17#
Sacks Cement: 35

5 1/2"
3347

OPEN HOLE

Size: 5" (3347'-3475')
Total Depth: 3475'
Pay Zone: 3424-62

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Apf EXHIBIT NO. 3
CASE NO. 3358

TO 3475'

Well data on wells to be converted to injection.

(KEELY ZONE)

General American Oil Company of Texas
Grayburg-Jackson (Keely Zone) Waterflood
Eddy County, New Mexico

Operator:	General American	General American	General American
Well No.:	Burch "B" #4	Burch "B" #5	Burch "B" #7
Location:	660' FSL & 1980' FUL Sec. 23, 17-S, 29-E	1980' FSL & 1980' FUL Sec. 23, 17-S, 29-E	1980' FSL & 1980' FUL Sec. 23, 17-S, 29-E
Elevation:	3579'	3599'	3600'
Completion Data:			
Total Depth:	3325'	3325'	3360'
PA Total Depth:			
Surface Casing:			
Depth Set:	415'	400'	420'
Size & Wt.:	8 5/8" 24#	8 5/8" 24#	8 5/8" 24#
No. Sacks	75	100	100
Production Casing:			
Depth Set:	2536' <i>g hole</i>	2565'	2557'
Size & Wt.:	7" 20#	7" 20#	7" 20#
No. Sacks:	75	100	100
Pay Zone:	3292-3325	3290-3317	3320-3355
Shot Record:			
Date:			
Interval:			
No. Quarts:			
Acidizing Record:			
Date:	1-7-57	4-5-56	5-8-57
Gals:	450 gals 20% HCL	916 gals 20% HCL	500 gals 20% HCL
Interval:	(OH) 3249-3325	(OH) 3267-3325	(OH) 3265-3355
Fracing Record:			
Date:	1-7-57	4-5-56	5-8-57
Interval:	(OH) 3249-3325	(OH) 3267-3325	(OH) 3265-3355
Volume:	36,036 gals & 750# 40-60 Sand 60,000# 20-40 Sand	19,740 gals & 28,600# Sand	29,148 gals & 30,000# 40-60 30,000# 20-40 Sand

BEFORE EXAMINER NOTED
OIL CONSERVATION COMMISSION
Leppin EXHIBIT NO. *4*
CA# *10* 3358

Well data on wells to be converted to injection.

(KEELY ZONE)

General American Oil Company of Texas
Grayburg-Jackson (Keely Zone) Waterflood

Eddy County, New Mexico

Operator:	General American	General American	General American
Well No.:	Burch "C" #6	Burch "C" #7	Burch "C" #8
Location:	1980 FEL & 660 FSL Sec 23, 17-S, 29-E	660 FEL & 1980 FSL Sec 23, 17-S, 29-E	660 FEL & 660 FSL Sec 23, 17-S, 29-E
Elevation:	3578	3589	3581
Completion Data:			
Total Depth:	3326'	3358'	3493'
FB Total Depth:			3374'
Surface Casing:			
Depth Set:	366'	384'	390'
Size & Wt.:	8 5/8" 28#	8 5/8" 24#	8 5/8" 28#
No. Sacks:	90	75	75
Production Casing:			
Depth Set:	2385'	2459'	2509'
Size & Wt.:	7" 20#	7" 24#	7" 24#
No. Sacks:	100	100	100
Pay Zone:	3295-3315	3316-45	3338-3372
Shot Record:			
Date:			
Interval:			
No. Quarts:			
Acidizing Record:			
Date:	6-24-56	8-28-56	8-1-56
Gals:	924 gals 20% HCL	903 gals 20% HCL	1000 gals 20% HCL
Interval:	(OH) 3255-3326	(OH) 3282-3358	(OH) 3291-3374
Fracing Record:			
Date:	6-24-56	8-28-56	8-2-56
Interval:	(OH) 3255-3326	(OH) 3282-3358	(OH) 3291-3374
Volume:	31,248 gals crude 4,000# 40-60 sand 50,000# 20-40 sand	32,970 gals crude 4000# 40-60 sand 36,000# 20-40	24,780 gals crude 4,000# 40-60 sand, 36,000# 20-40 sand

Well data on wells to be converted to injection.

(KEELY ZONE)

General American Oil Company of Texas

Grayburg-Jackson (Keely Zone) Waterflood

Eddy County, New Mexico

Operator:	General American	General American	General American
Well No.:	Burch "B" #8	Burch "C" #1	Burch "C" #2
Location:	1980' FNL & 660' FWL Sec. 23, 17-S, 29-E	2400' FNL & 855' FWL Sec. 23, 17-S, 29-E	2310' FNL & 2310' FWL Sec. 23, 17-S, 29-E
Elevation:	3598'	3595'	3596'
Completion Data:			
Total Depth:	3384'	3319'	3337'
PB Total Depth:			
Surface Casing:			
Depth Set:	440'	362'	390'
Size & Wt.:	8 5/8" 28#	8 5/8" 24#	8 5/8" 28#
No. Sacks:	50	50	50
Production Casing:			
Depth Set:	2554'	2597'	2666'
Size & Wt.:	7" 24#	7" 20#	7" 20#
No. Sacks:	100	75	100
Pay Zone:	3324-3384	3288-3316	3295'-3335'
Shot Record:			
Date:			
Interval:			
No. Quarts:			
Acidizing Record:			
Date:	6-1-57	3-10-56	4-14-57
Gals:	500 gals 20% HCL	840 gals 20% HCL	500 gals 20% HCL
Interval:	(OH) 3290-3384	(OH) 3237-3319	(OH) 3246-3337
Fracturing Record:			
Date:	6-1-57	3-10-56	4-14-57
Interval:	(OH) 3290-3384	(OH) 3237-3319	(OH) 3246-3337
Volume:	28,812 gals & 30,000# 40-60	35,028 gals crude oil	43,932 gals crude, 30,000# 40-60 sand
	& 30,000# 20-40 sand	2,000# 40-60 sand & 30,000# 20-40 sand	30,000# 20-40 sand

2835

Liner

Liner

Liner

top dirt

Well data on wells to be converted to injection.

(KEELY ZONE)

General American Oil Company of Texas
Grayburg-Jackson (Keely Zone) Waterflood
Eddy County, New Mexico

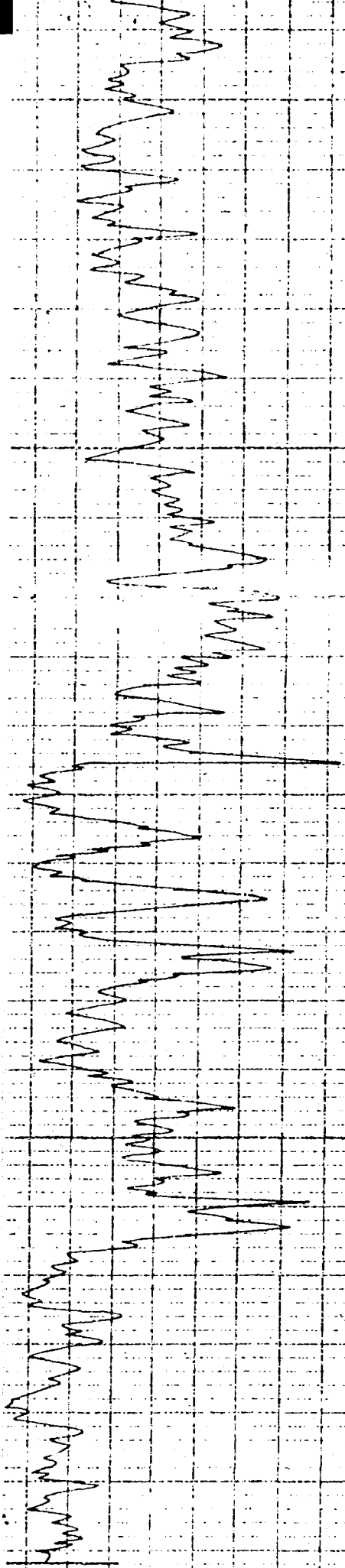
Operator:	General American	General American	General American
Well No.:	Keely "B" #1	Keely "B" #4	Keely "C" #1
Location:	660 FNL & 1980 FNL Sec 26, 17-S 29-E	660 FNL & 660 FNL Sec 26, 17-S 29-E	330 FNL & 990 FNL Sec 26, 17-S 29-E
Elevation:	3587'	3589'	3560'
Completion Data:			
Total Depth:	3450'	3475'	3325'
PP Total Depth:			
Surface Casing:			
Depth Set:	400'	394'	320'
Size & Wt.:	8 5/8" 24#	8 5/8" 24#	8 5/8" 28#
No. Sacks:	50	50	50
Production Casing:			
Depth Set:	2509	2772	2685
Size & Wt.:	7" 20#	7" 20#	7" 20#
No. Sacks:	100	100	100
Pay Zone:	3405-44	3424-62	3285-3315
Shot Record:			
Date:			
Interval:			
No. Quarts:			
Acidizing Record:			
Date:	9-27-57	11-3-57	3-27-57
Gals:	1500 gals 20% HCL	1500 gals. 20% HCL	400 gals 20% HCl
Interval:	(OH) 3314-3450	(OH) 3347-3475'	(OH) 3252-3325
Fracing Record:			
Date:	9-29-57	11-6-57	3-27-57
Interval:	(OH) 3314-3450	(OH) 3347-3475	(OH) 3252-3325
Volume:	34,000 gals crude 30,000# 40-60 sand & 24,000# 20-40 sand	40,000 gals crude 30,000# 40-60 sand 34,000# 20-40 sand	37,000 gals crude 5,000# 40-60 sand 45,000# 20-40 sand

Well data on wells to be converted to injection.
(KEELY ZONE)

General American Oil &
Crayburg-Jackson (Keely)

Eddy County, New Mexico

Operator:	General American	General American	
Well No.:	Keely "C" #9	Keely "C" #14	
Location:	1980 FNL & 1980 FNL Sec. 26, 17-S, 29-E	1980 FNL & 660 FNL Sec. 26, 17-S, 29-E	
Elevation:	3581'	3577'	
Completion Data:			
Total Depth:	3426'	3430'	
PN Total Depth:		3368' (Will clean out to orig. T.D.)	
Surface Casing:			
Depth Set:	369'	372'	
Size & Wt.:	8 5/8" 24#	8 5/8" 24#	
No. Sacks:	50	75	
Production Casing:			
Depth Set:	2784'	2737'	Liner 2731-3337
Size & Wt.:	7" 20#	5 1/2" 14#	
No. Sacks:	100	35	N/A
Pay Zone:	3340-48	3420-30	
Shot Record:			
Date:			
Interval:			
No. Quarts:			
Acidizing Record:			
Date:	8-19-58		
Gals:	500 gals 20% HCL		
Interval:	(OH) 3337-3426	NONE	
Fracture Record:			
Date:	8-19-58		
Interval:	(OH) 3337-3426		
Volume:	34,900 gal crude, 30,000# 40-60		
	sand & 30,000# 20-40 sand		



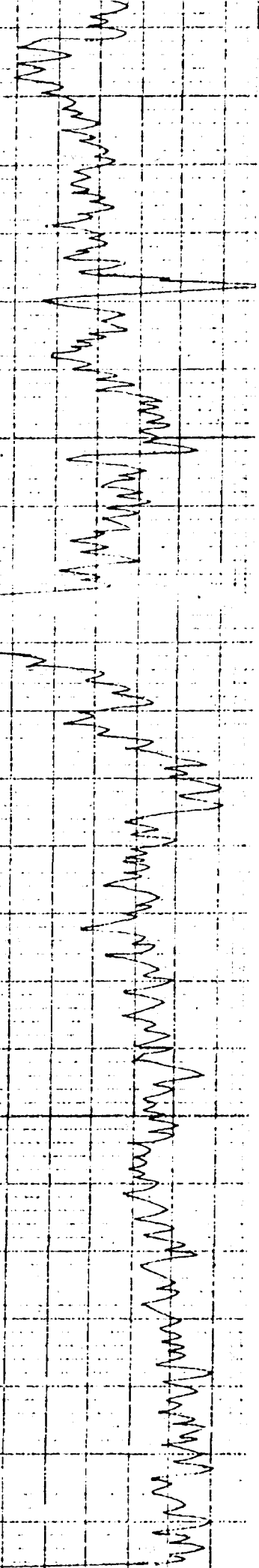
3300

1 1/2" LINER

3400

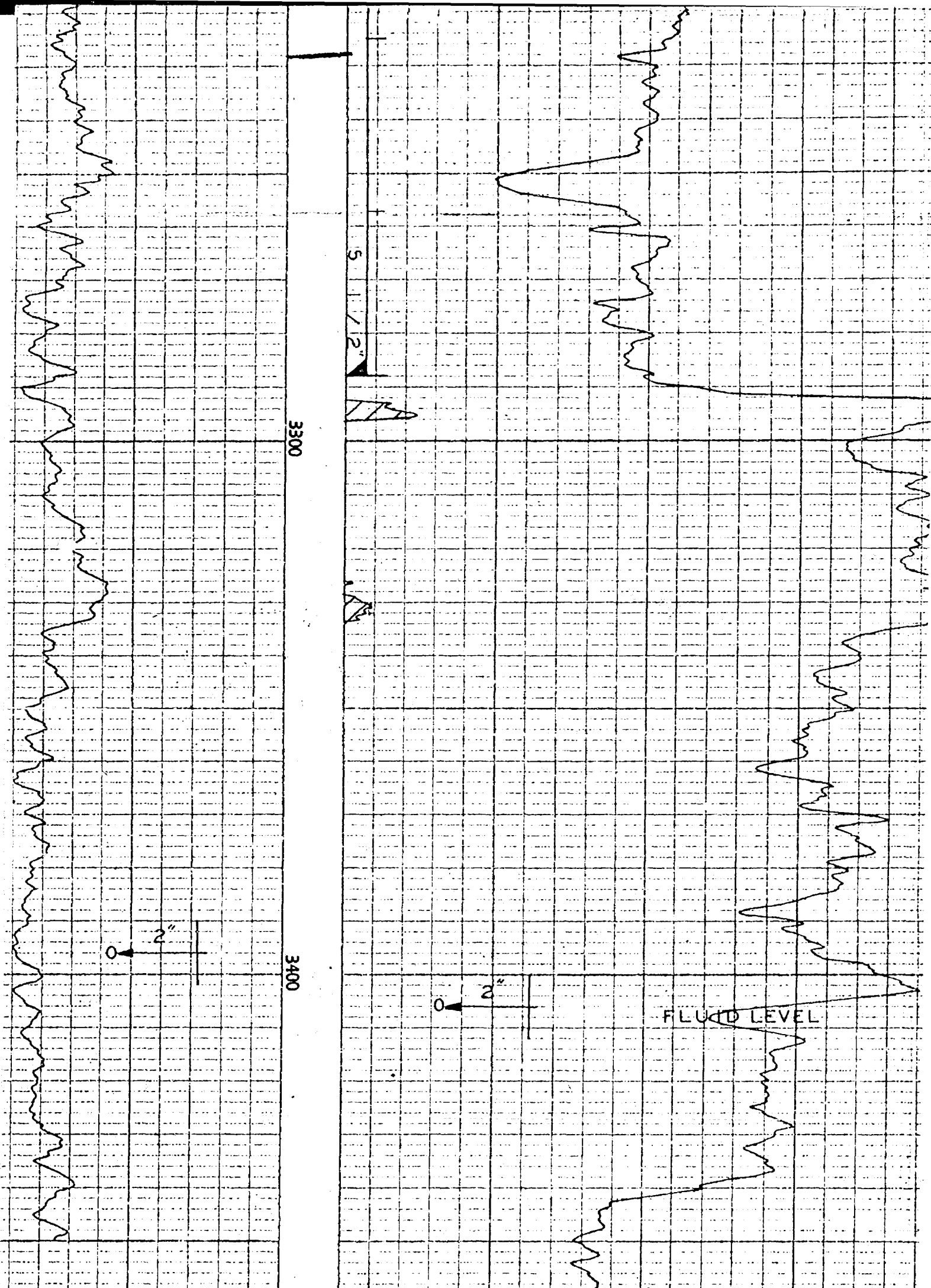
BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 3358

Handwritten notes:
all my...
W. H. ...
C. H. ...



R.D. 3472.5
T.D. 3474.1

GENERAL AMERICAN OIL CO. OF TEXAS
KEELY B N. 4
GRAYBURG KELLY
EDDY CO., NEW MEXICO



R. D. 3450

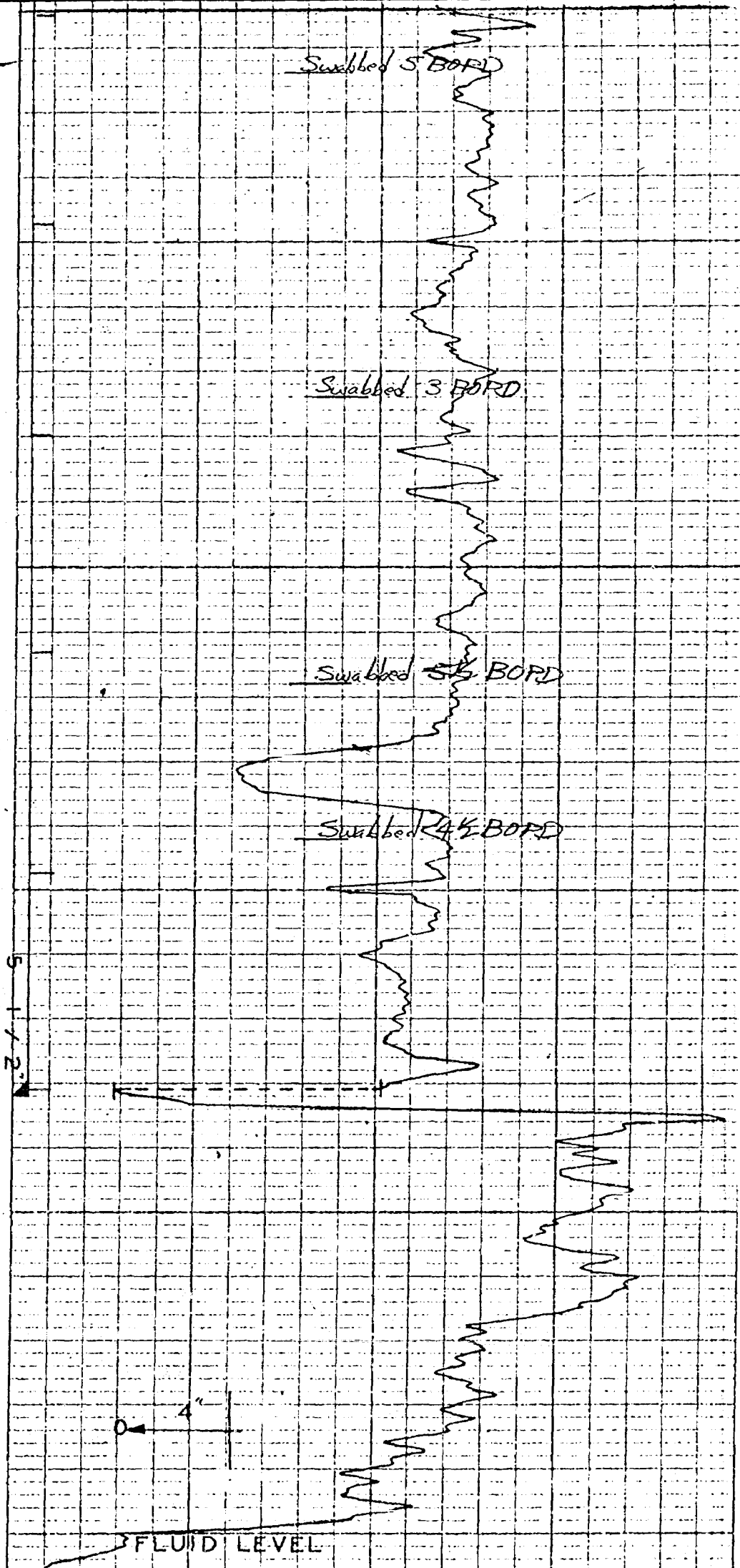
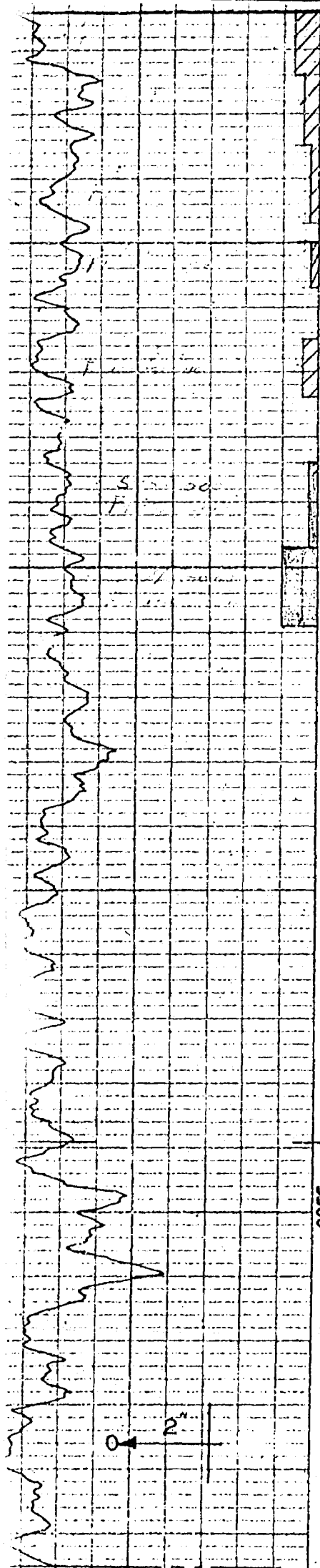
T. D. 3462

GENERAL AMERICAN OIL CO. OF TEXAS

BURCH C N°8

GRAYBURG KEELY

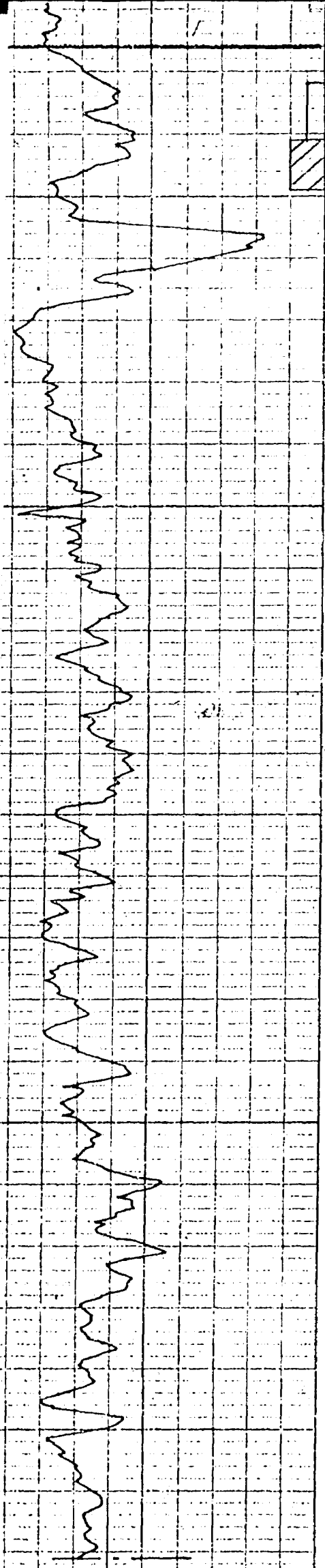
R. D. 3460



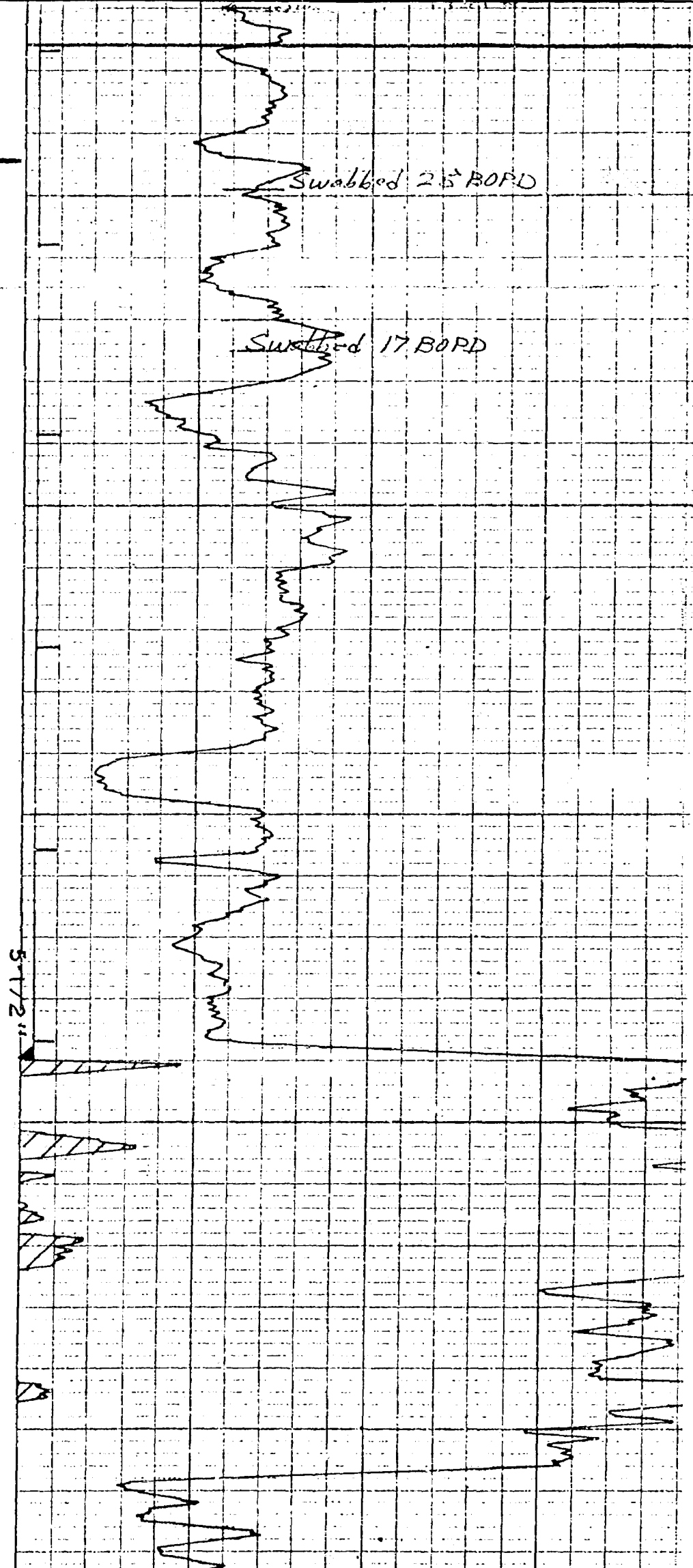
R. D. 3355
T. D. 3358

R. D. 3356

GENERAL AMERICAN OIL CO. OF TEXAS
BURCH C. N°7
GRAYBURG KEELY



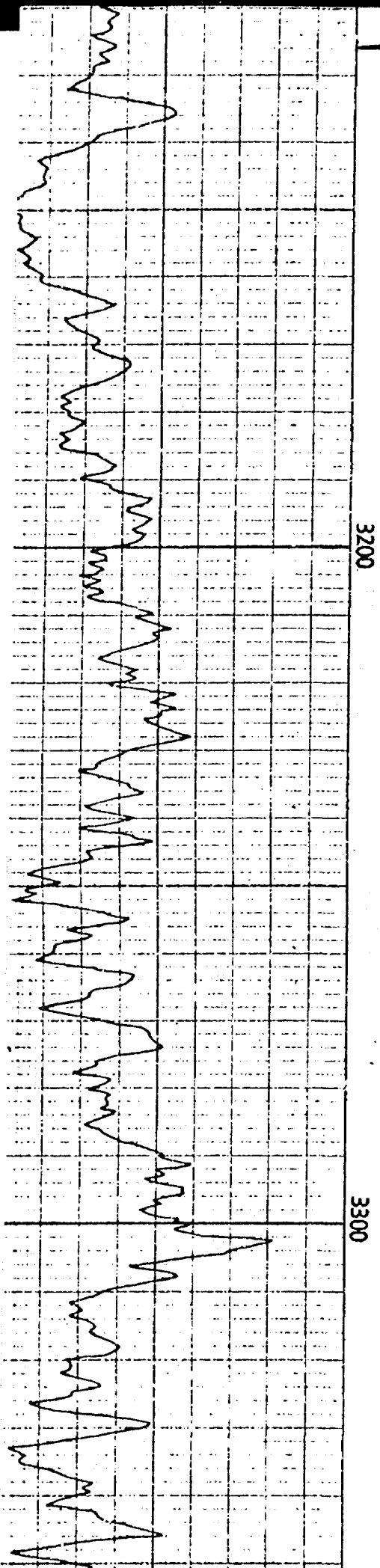
3200
3300



R. D. 3371'
T. D. 3382'

R. D. 3380'
T. D. 3382'

BURCH B #8

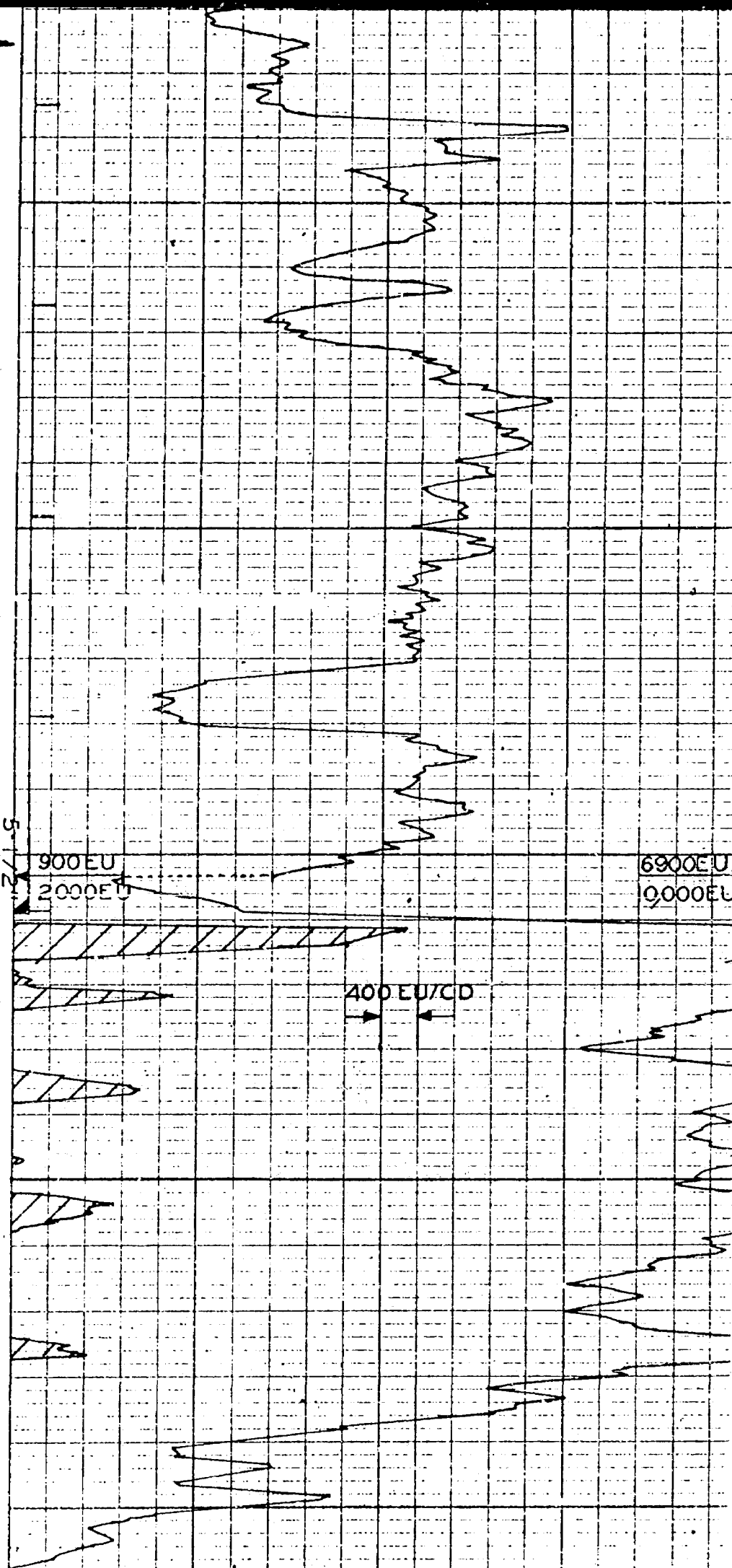


3200

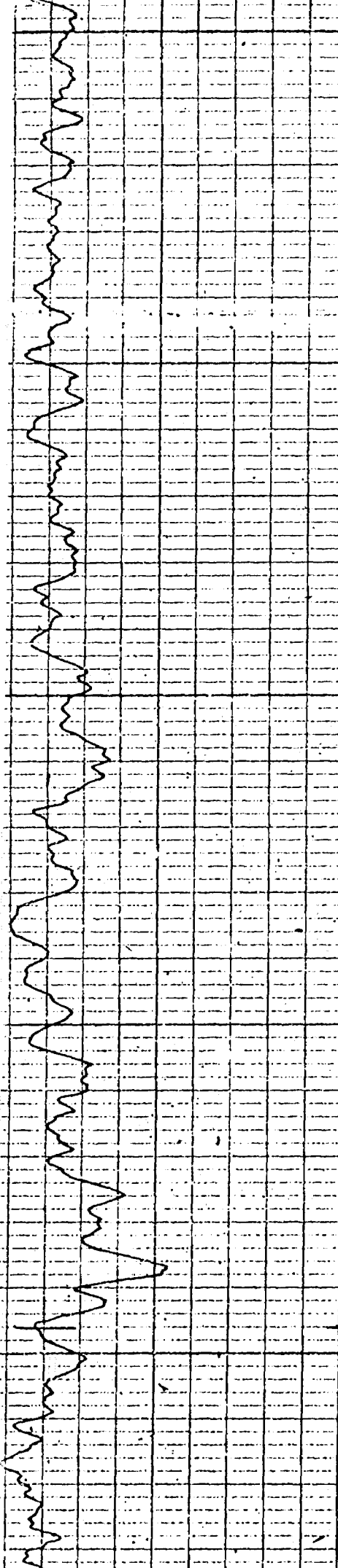
3300

R. D. 3351'
T. D. 3362'

GENERAL AMERICAN OIL CO. OF TEXAS
BURCH B NO. 7
GRAYBURG KEELY



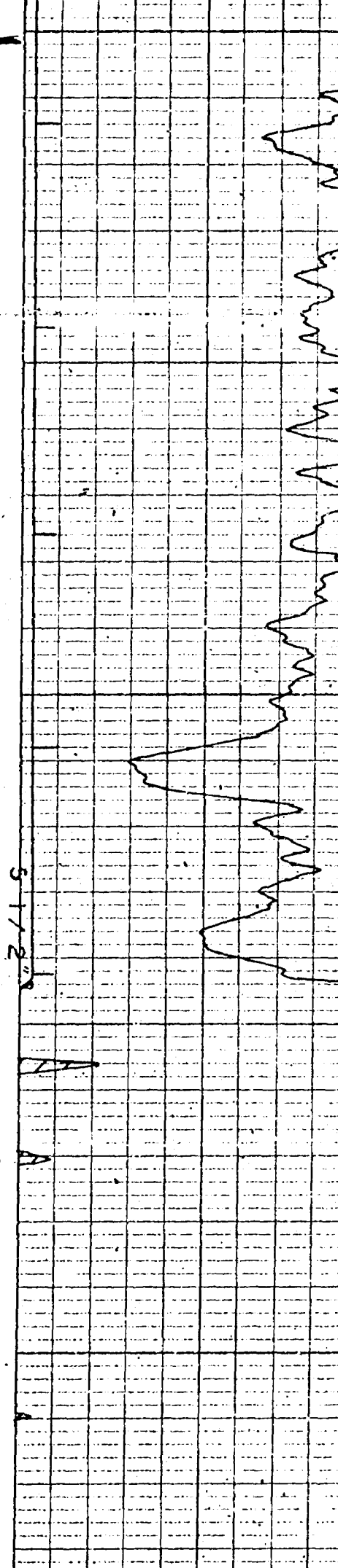
R. D. 3360'
T. D. 3362'



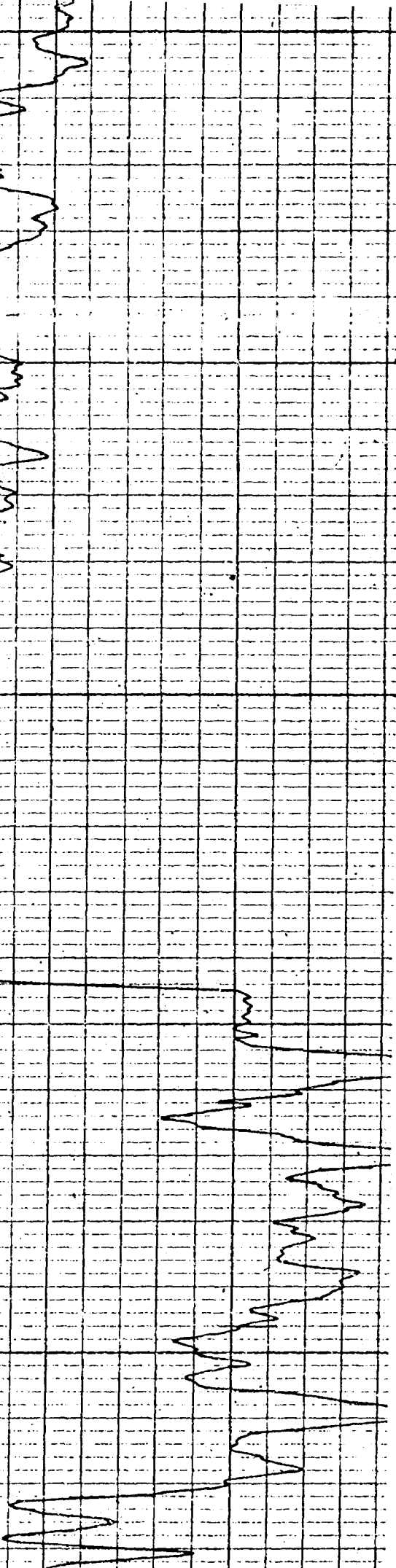
3100

3200

3300



5 1 1 2 2 2



R. D. 3334

T. D. 3337

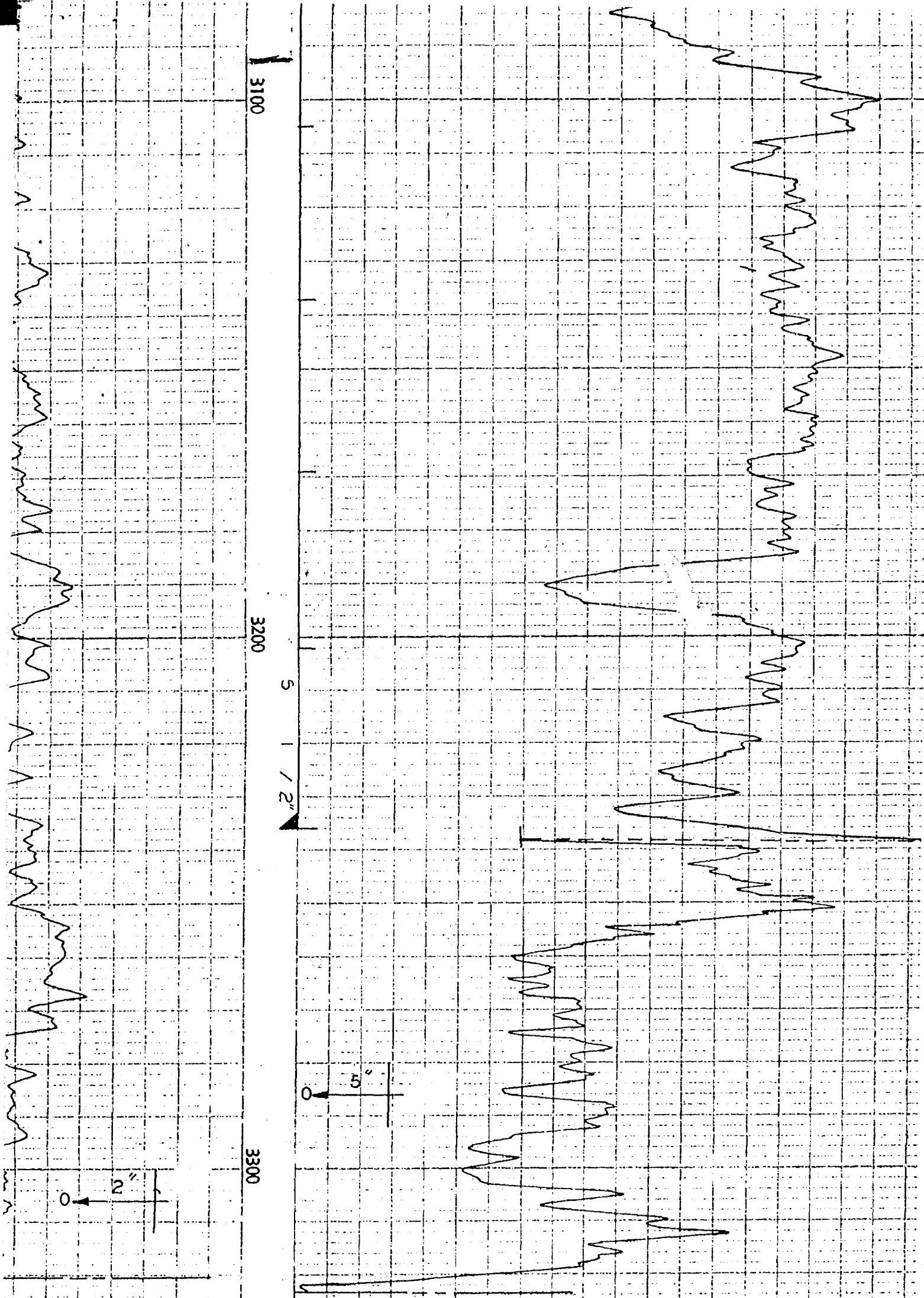
GENERAL AMERICAN OIL CO. OF TEXAS

BURCH C. N°2

GRAYBURG KEELY

R. D. 3335

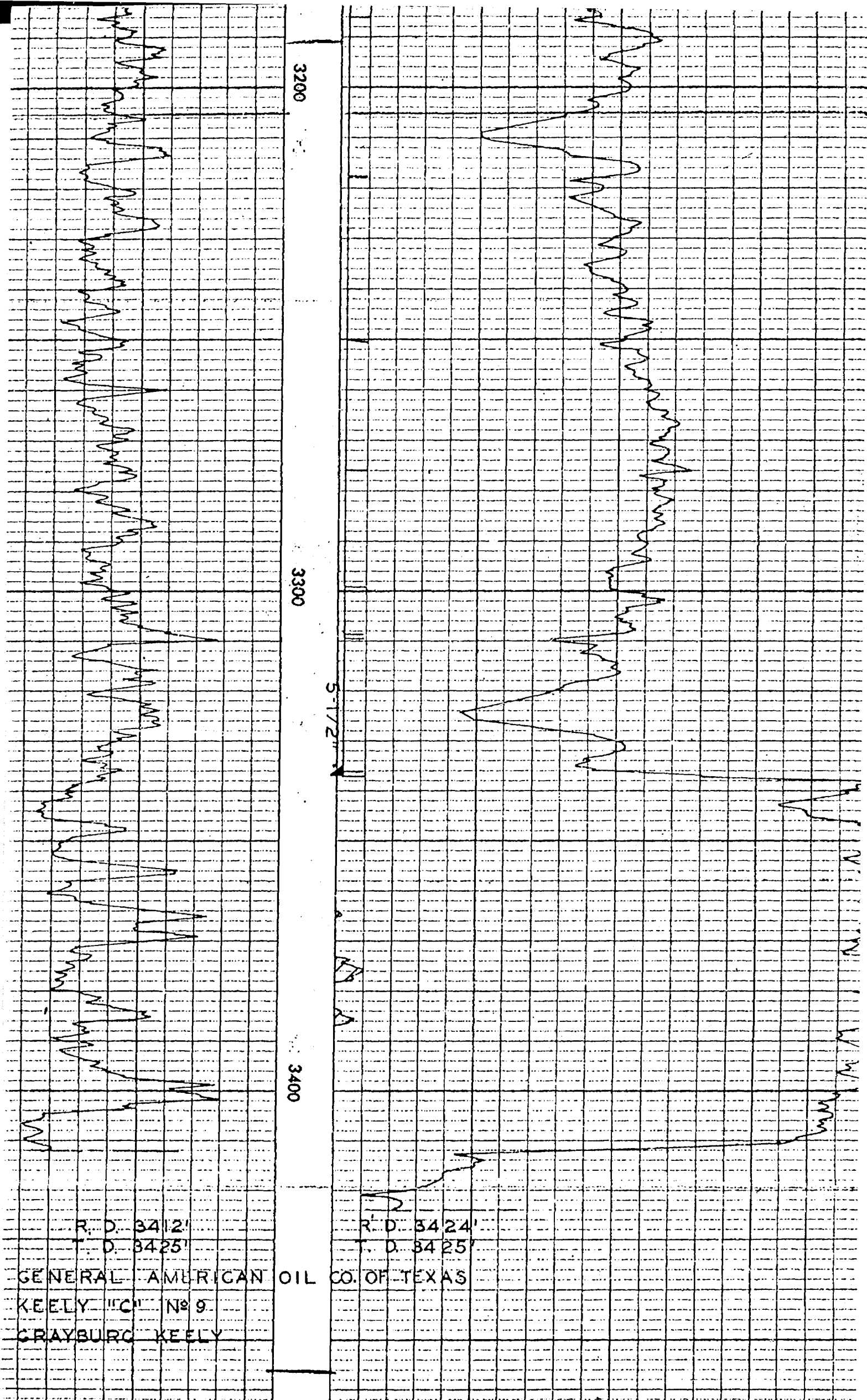
T. D. 3337



R. D. 3320.5'
T. D. 33235'

R. D. 3321.5'

GENERAL AMERICAN OIL CO. OF TEXAS
WELL "C" NO. 1
RAYBURG KEELY



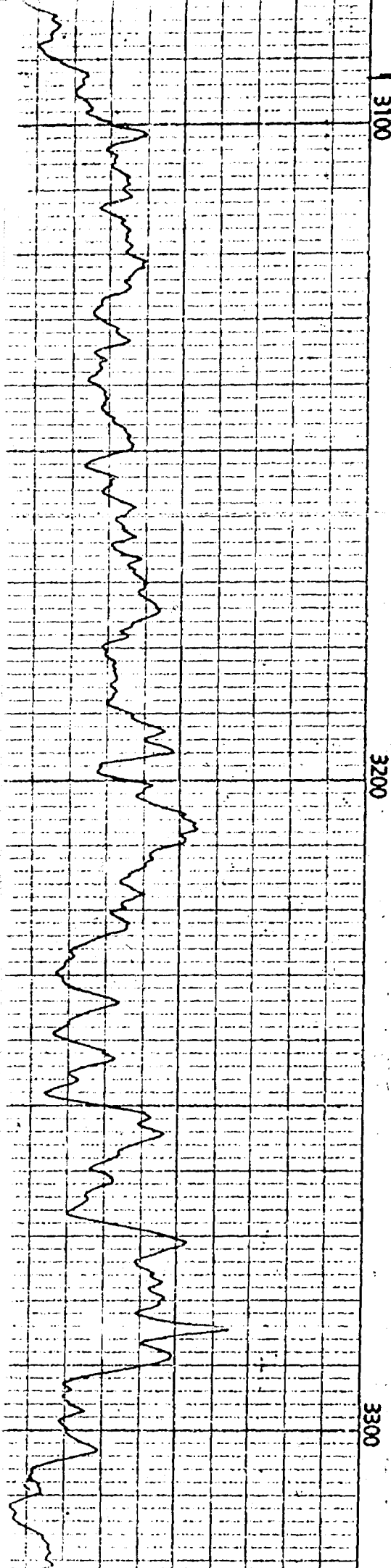
R. D. 3412'
T. D. 3425'

R. D. 3424'
T. D. 3425'

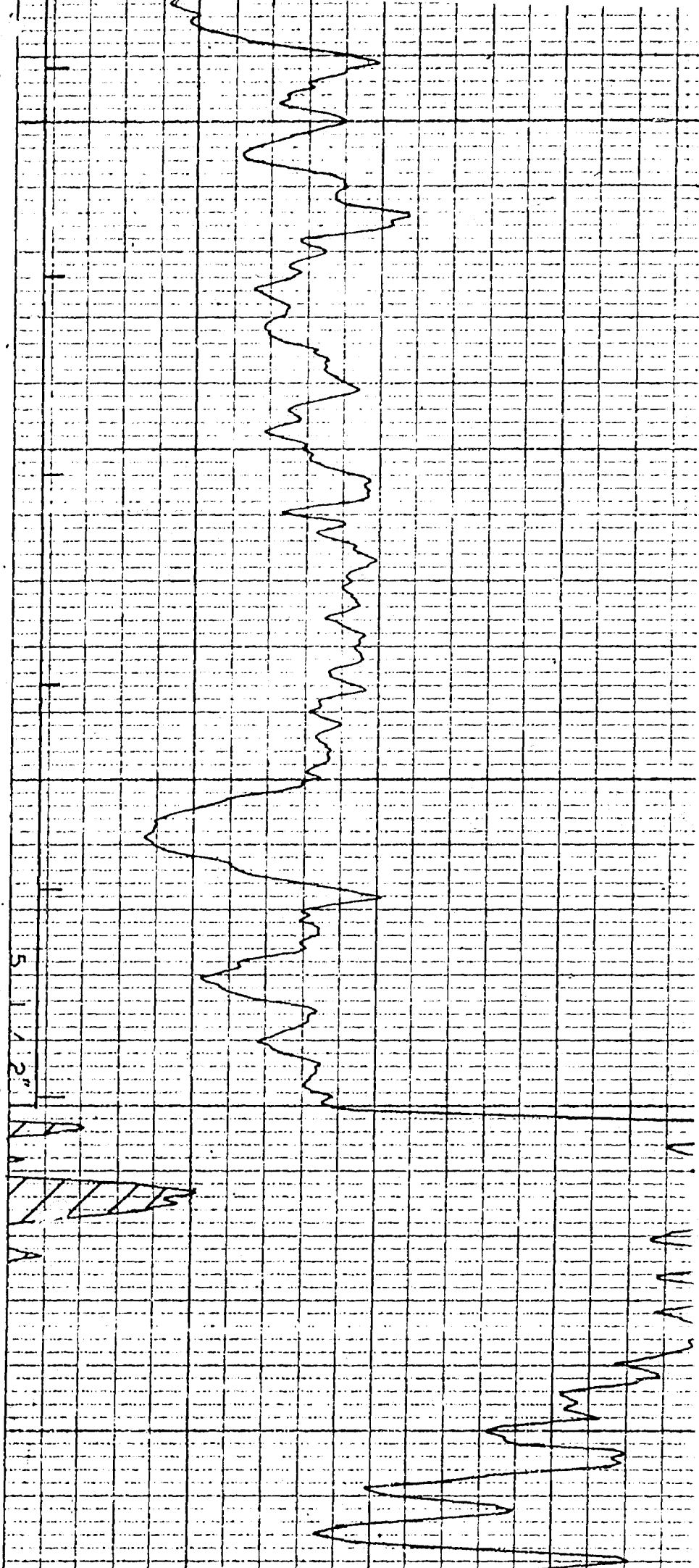
GENERAL AMERICAN OIL CO. OF TEXAS

KEELY "C" No 9

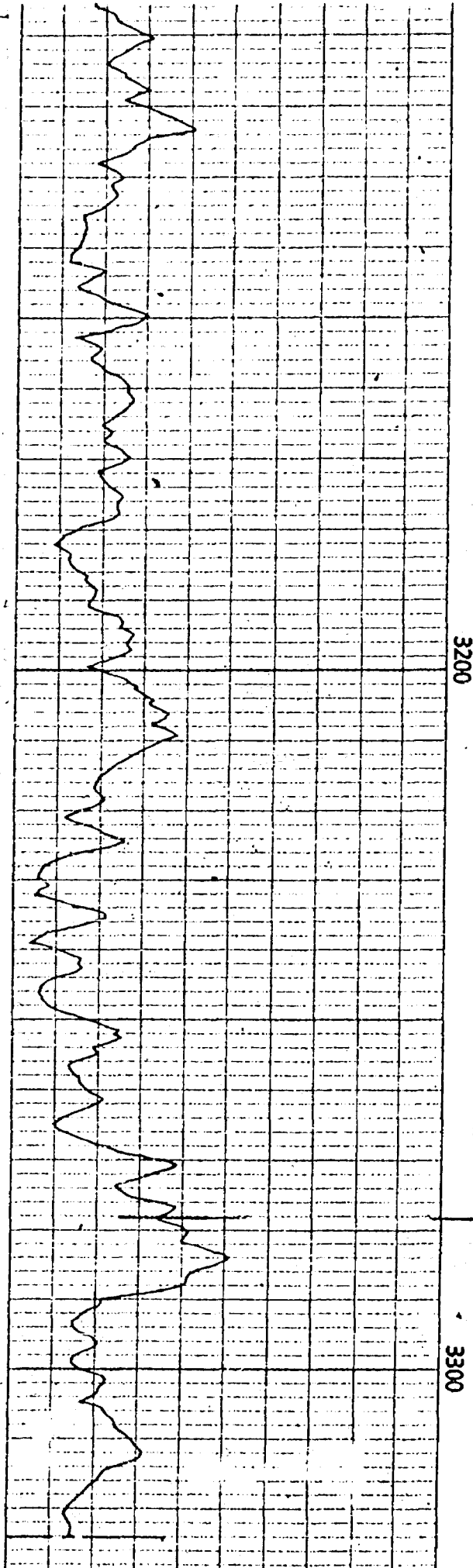
GRAYBURG KEELY



R. D. 33215
T. D. 33245
GENERAL AMERICAN OIL CO. OF TEXAS
BURCH B-4
GRAYBURG KEELY



R. D. 33225
T. D. 33245



3200

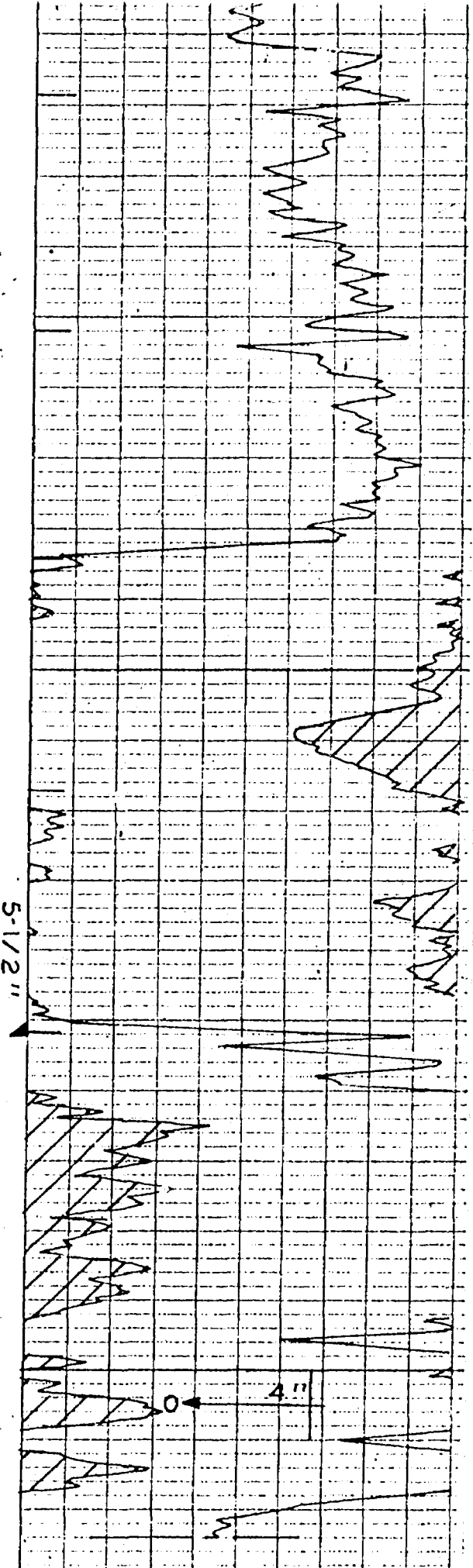
5-1/2"

3300

R. D. 3324'

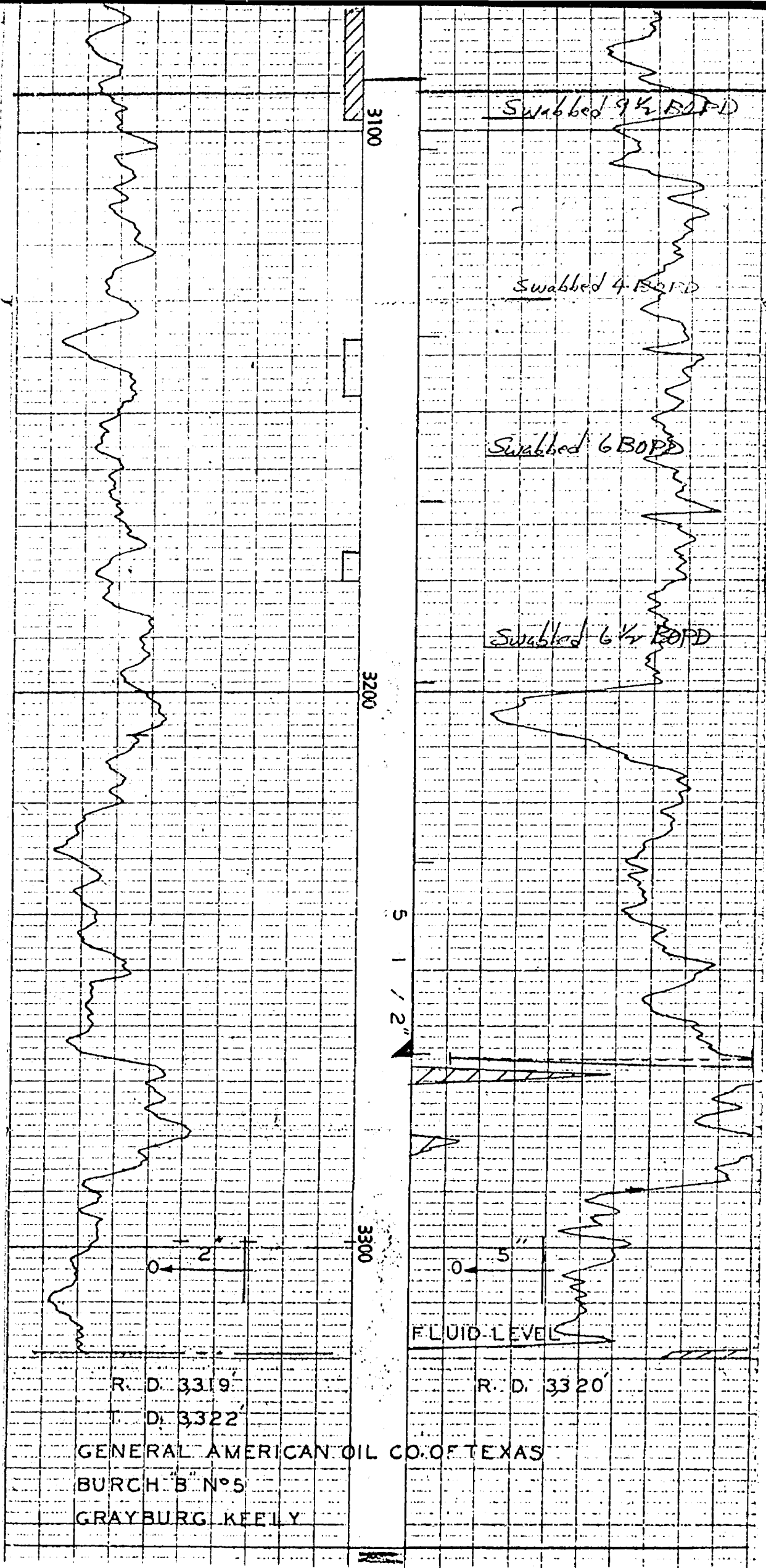
R. D. 3326'

GENERAL AMERICAN OIL CO. OF TEXAS
BURCH "C" NO. 6
GRAYBURG KEELY



R. D. 3324'

4"



Swabbed 9 1/2 BOPD

Swabbed 4 BOPD

Swabbed 6 BOPD

Swabbed 6 1/2 BOPD

FLUID LEVEL

R. D. 3319

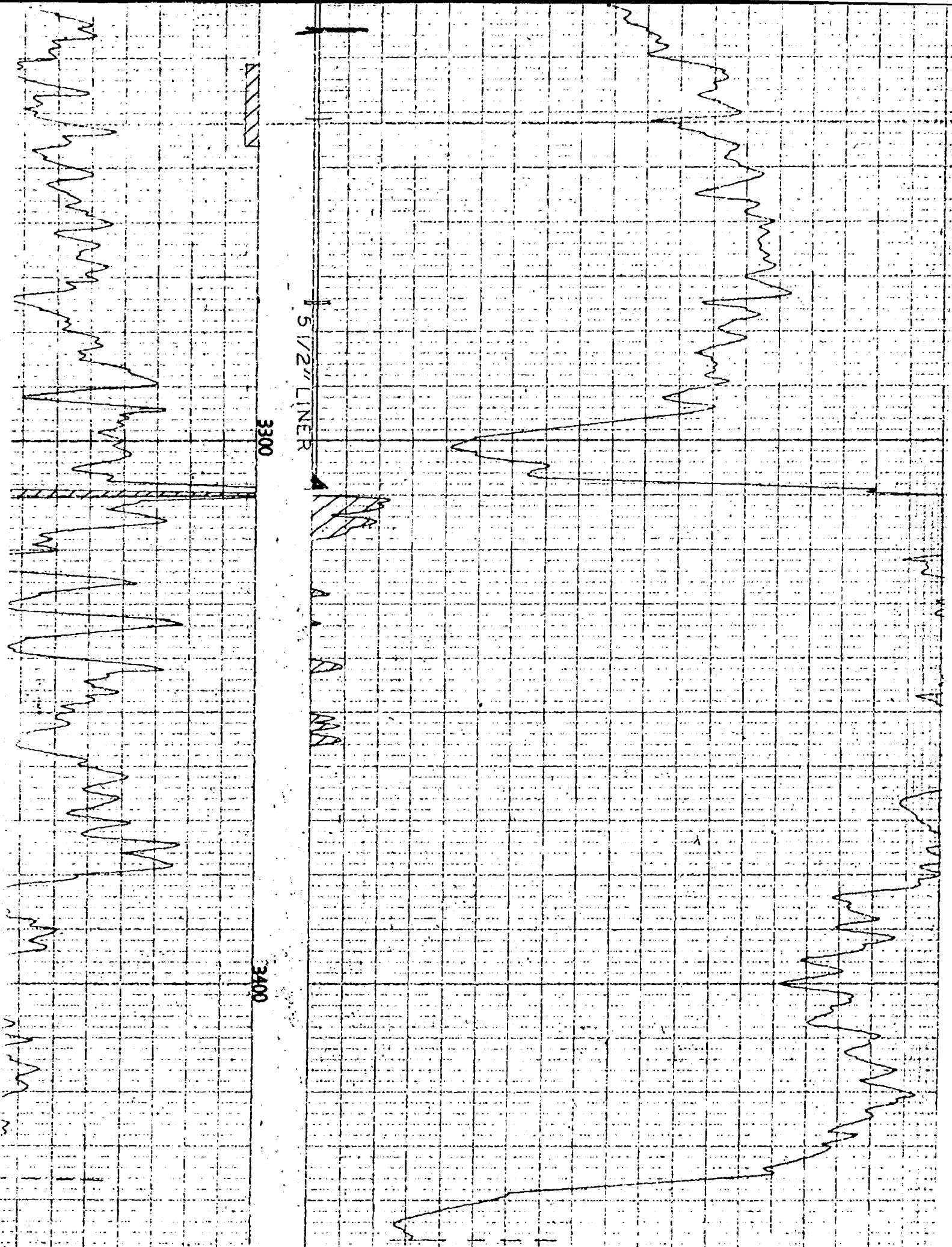
T. D. 3322

GENERAL AMERICAN OIL CO. OF TEXAS

BURCH B N°5

GRAYBURG KEELY

R. D. 3320



R.D. 3447.5'
T.D. 3449'

GENERAL AMERICAN OIL CO. OF TEXAS.
KEELY "B" No. 1
GRAYBURG - KEELY
EDDY CO. N. MEX.



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Drawer 1857
Roswell, New Mexico 88201

December 23, 1965

General American Oil Company of Texas
P. O. Box 416
Loco Hills, New Mexico

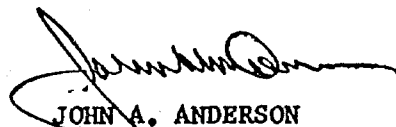
Attention: Mr. R. J. Heard

Gentlemen:

Your 1966 plan of development for the Grayburg-Keely zone, Grayburg Cooperative and unit agreement, Eddy County, New Mexico, has been approved on this date.

Three approved copies of the plan are enclosed.

Sincerely yours,



JOHN A. ANDERSON
Regional Oil and Gas Supervisor

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<u>Allyn</u>	EXHIBIT NO. <u>6</u>
CASE NO. <u>3358</u>	

GRAYBURG COOPERATIVE AND UNIT AGREEMENT (I-SEC. NO. 370)
EDDY COUNTY, NEW MEXICO

GRAYBURG-KEELY ZONE: PLAN OF OPERATION COVERING THE PERIOD JANUARY 1, 1966
THROUGH DECEMBER 31, 1966

TO: Mr. John A. Anderson
Regional Oil and Gas Supervisor
United States Geological Survey
P. O. Drawer 1857
Roswell, New Mexico

It is intended by the General American Oil Company of Texas, the Unit Operator for the Grayburg Cooperative and Unit Agreement, Eddy County, New Mexico, that the Plan of Operation for the Grayburg-Keely Zone under the Grayburg Cooperative and Unit Area, originally approved by the Oil and Gas Supervisor on February 4, 1949, shall remain in effect for the period January 1, 1966 through December 31, 1966.

1. DEVELOPMENT TO DATE: Cumulative production from the Grayburg-Keely Zone through December 1, 1965 was 1,124,574 barrels of oil. Production from December 1, 1964 to December 1, 1965 was 72,098 barrels of oil from 23 wells. There were no new wells drilled during 1965.

2. PLAN OF DEVELOPMENT: The operator plans to seek approval from the Oil Conservation Commission in January, 1966 for its ultimate waterflood pattern of the Keely Zone. When completed there could be as many as 14 wells converted to water injection. Possible development during 1966 would be the conversion of Burch C #1 to water injection to join Sunray DX in a pilot test on the northwest side of the field. Chances are good the Keely B #4 and Burch C #8 would also be converted to water injection in the southeast portion of the field. Attached is a plat showing the ultimate flood plan and showing that these three conversions would fit the ultimate plan. It will be noted that the ultimate pattern is shown as Plan I, II and III. Plan I is a peripheral pattern which will be the first employed, if it appears that this will not sufficiently recover the proper amount of oil remaining then the wells in Plan II will be converted thus making a modified peripheral pattern. If it is later determined that closer spacing of injection wells are still needed then the wells in Plan III will be converted to injection creating a pattern type flood.

3. PARTICIPATING AREA: The participating area as approved by the Acting Director of the United States Geological Survey, now consists of the following lands:

South Half and South Half of North Half of Section 23, North Half of North Half, North Half of South Half of Northwest Quarter, South Half of Southeast Quarter of Northwest Quarter, and West Half of Southwest Quarter of Northeast Quarter of Section 26, Township 17 South, Range 29 East, N.M.P.M., Eddy County, New Mexico.

4. MODIFICATION OF PLAN: This plan may be modified from time to time by the Unit Operator, with the approval of the Oil and Gas Supervisor, to meet changed conditions or to take advantage of information obtained from flooding or from offset operators. The original Plan of Operation with these modifications to remain in effect through December 31, 1966 on or about which date the Unit Operator shall submit for approval of the Oil and Gas Supervisor a new Plan of Operations or appropriate modification or Amendment of Plan for the calendar year 1967.

Respectfully submitted,

GENERAL AMERICAN OIL COMPANY OF TEXAS

By: R. J. Heard
R. J. Heard
District Superintendent

Dated this 22 day of December, 1965

Approved this 23 day of December 1965.

John A. Anderson
Regional Oil and Gas Supervisor
Roswell, New Mexico

RECEIVED

DEC 20 1965

U. S. GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO