

**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 17th day of December, 1965

Approved this 23 day of December 1965.

[Signature]  
Regional Oil and Gas Supervisor  
Roswell, New Mexico

**RECEIVED**

DEC 20 1965

U. S. GEOLOGICAL SURVEY  
ROSWELL, NEW MEXICO

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' FWL Sec. 23, 17-S, 29-E	1980' FSL & 1980' FWL Sec. 23 17-S, 29-E	1980' FNL & 1980' FEL Sec. 23 17-S, 29-E
Elevation:	3579'	3599'	3600'
Completion Data:			
Total Depth:	3325'	3325'	3360'
PB 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>8 1/2" 20#</i>	2565'	2557'
Size & Wt.:	7" 20#	7" 20#	7" 20#
No. Sacks:	75	100	100
Pay Zone:	3292-3325	3290-3317	3328-3355
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	19,760 gals & 28,400# Sand	29,148 gals & 30,000# 40-60 30,000# 20-40 Sand

BEFORE EXAMINER NOTIFIER  
OIL CONSERVATION COMMISSION  
*Lipman* 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'
PB 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

2620

2746

2860

top out

## 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' FEL Sec. 23, 17-S, 29-E	2400' FNL & 855' FNL Sec. 23, 17-S, 29-E	2310' FNL & 2310' FNL 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:	2564'	2597'	2606'
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
Fracture 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 & 30,000# 20-40 sand	35,028 gals crude oil & 2,000# 40-60 sand & 30,000# 20-40 sand	43,932 gals crude, 30,000# 40-60 sand & 30,000# 20-40 sand

Liner

Liner

Liner

2835

2810 top cut

Well data on wells to be converted to injection.

(KEELY ZONE)

General American Oil Company of Texas  
Grayburg-Jackson (Keely Zone) Interflood  
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 FEL Sec 26, 17-S 29-E	660 FNL & 660 FEL Sec 26, 17-S 29-E	330 FNL & 990 FNL Sec 26, 17-S 29-E
Elevation:	3587'	3589'	3563'
Completion Data:			
Total Depth:	3450'	3475'	3325'
PB 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# 5 1/2" 17#	7" 20# 5 1/2" 14# & 17#	7" 20# 5 1/2" 14#
No. Sacks:	100 2915	100 2935	100 2840
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
Tracing 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

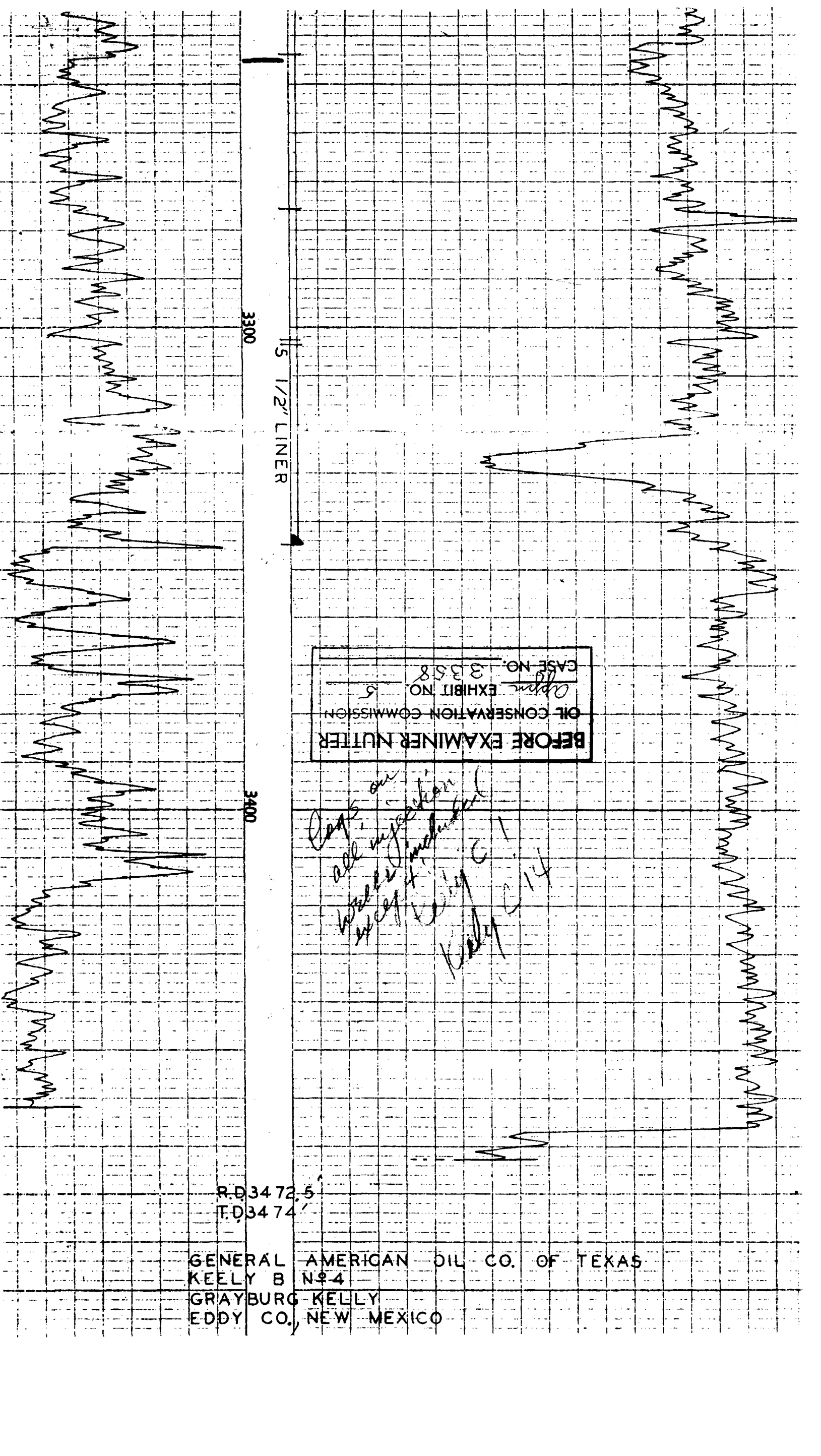
Well data on wells to be converted to injection.

(KEELY ZONE)

General American Oil  
Crayburg-Jackson (Keely &

Eddy County, New Mexico

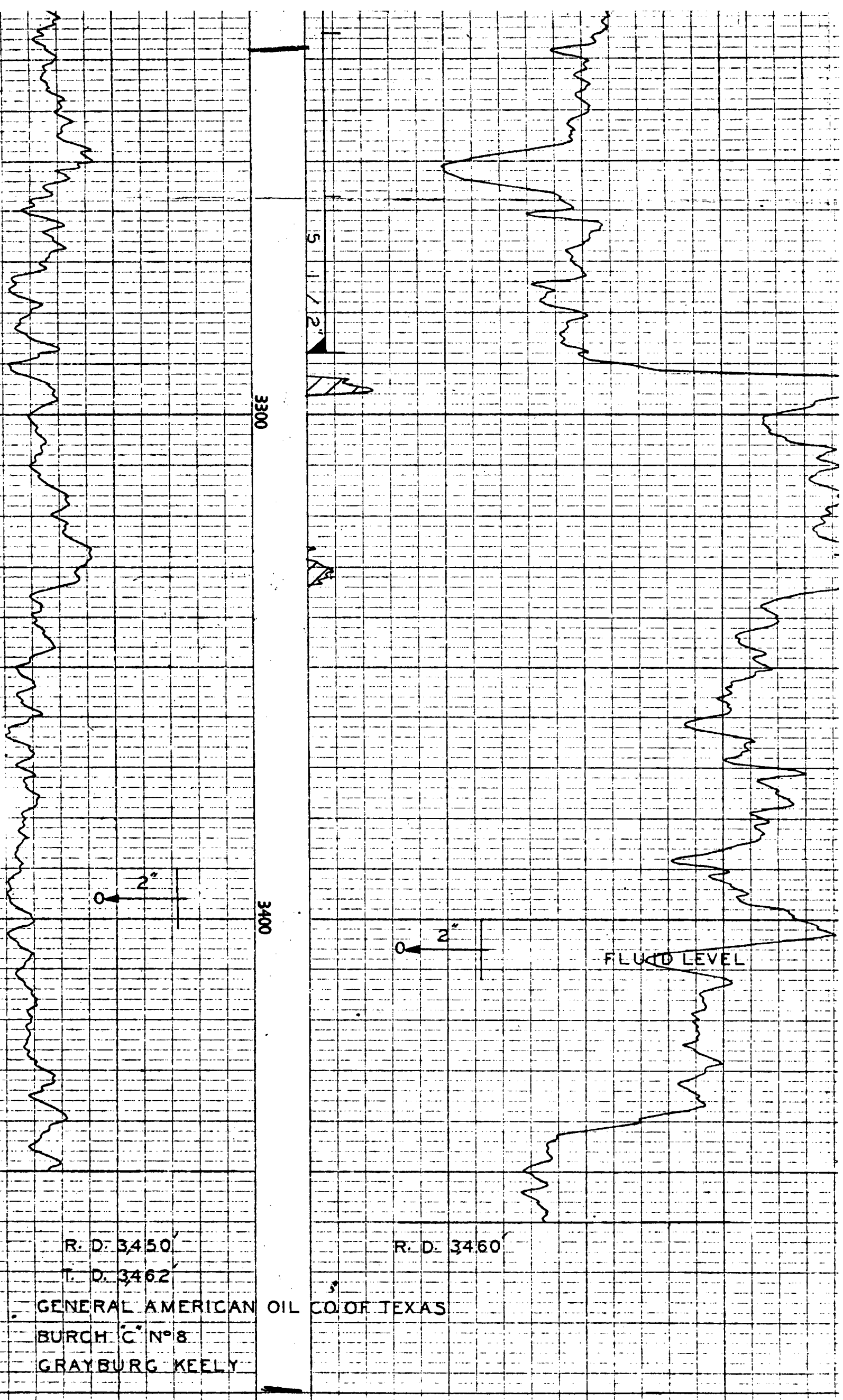
Operator:	General American	
Well No.:	Keely "C" #9	General American Keely "C" #14
Location:	1980 FNL & 1980 FNL Sec. 26, 17-S, 29-E	1980 FNL & 660 FNL Sec. 26, 17-S, 29-E
Elevation:	3581'	3577'
Completion Data:		
Total Depth:	3426'	3430'
PN Total Depth:		3368' (Will clean out to orig. T D)
Surface Casing:		
Depth Set:	369'	372'
Size & Wt.:	8 5/8" 24#	8 5/8" 24#
No. Sacks:	50	75
Production Casing:		
Depth Set:	2784'	Liner 2731-3337 2737'
Size & Wt.:	7" 20#	5 1/2" 14# 2678-3112' 7" 20#
No. Sacks:	100	35 N/A 200
Pay Zone:	3340-48	3420-30
Shot Record:		
Date:		
Interval:		
No. Quarts:		
Acidizing Record:		
Date:	8-19-58	
Gals:	500 gals 20% HCL	NONE
Interval:	(OH) 3337-3426	
Freeing Record:		
Date:	8-19-58	
Interval:	(OH) 3337-3426	
Volume:	34,900 gal crude, 30,000# 40-60 sand & 30,000# 20-40 sand	



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

Comp. on  
all injection  
wells in the  
Kelly C-14

R.D. 34 72.5  
T.D. 34 74  
GENERAL AMERICAN OIL CO. OF TEXAS  
KEELY B No. 4  
GRAYBURG KELLY  
EDDY CO., NEW MEXICO



R. D. 3450

T. D. 3462

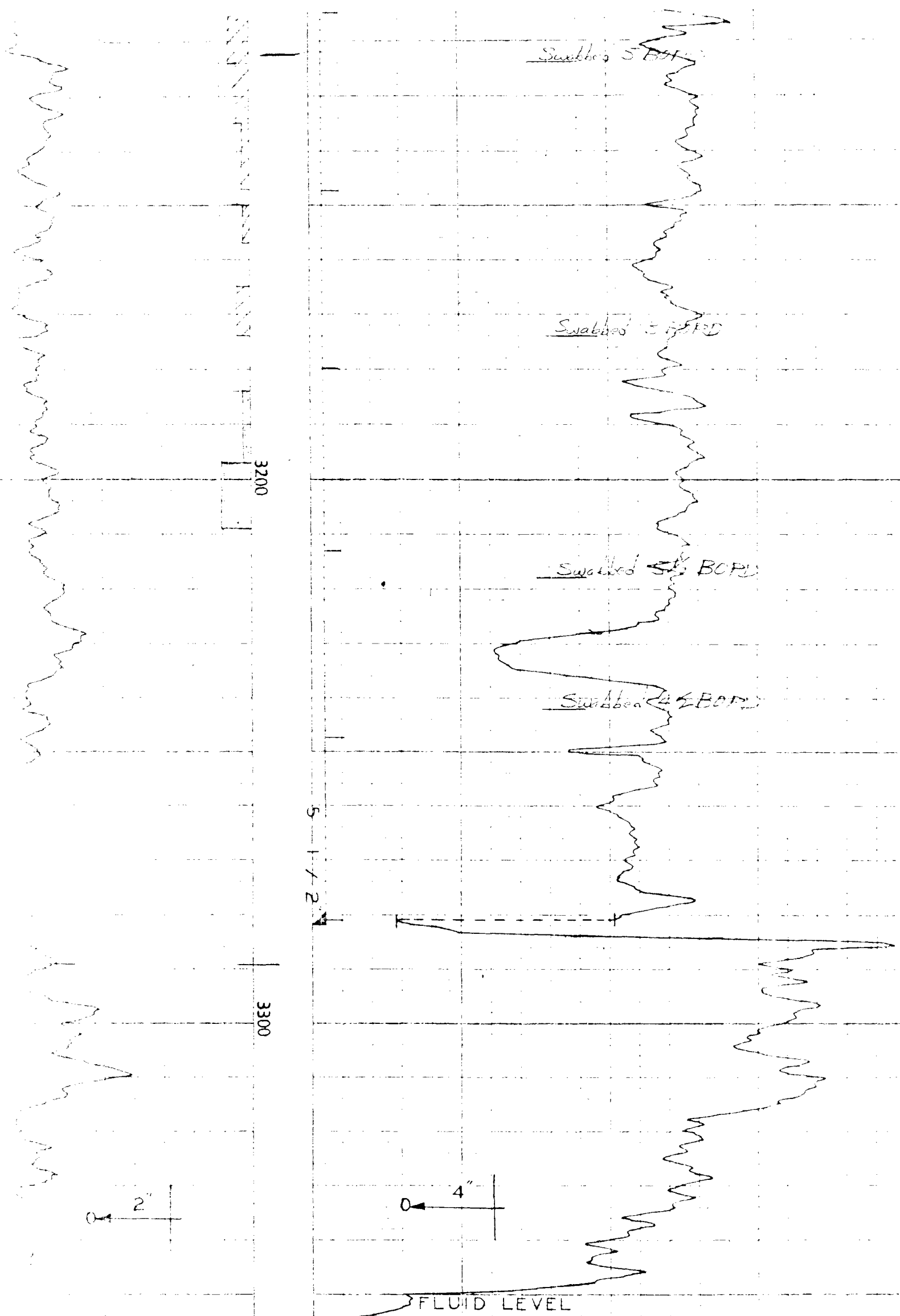
GENERAL AMERICAN OIL CO. OF TEXAS

BURCH C. N° 8

GRAYBURG KEELY

R. D. 3460





R. D. 3355'

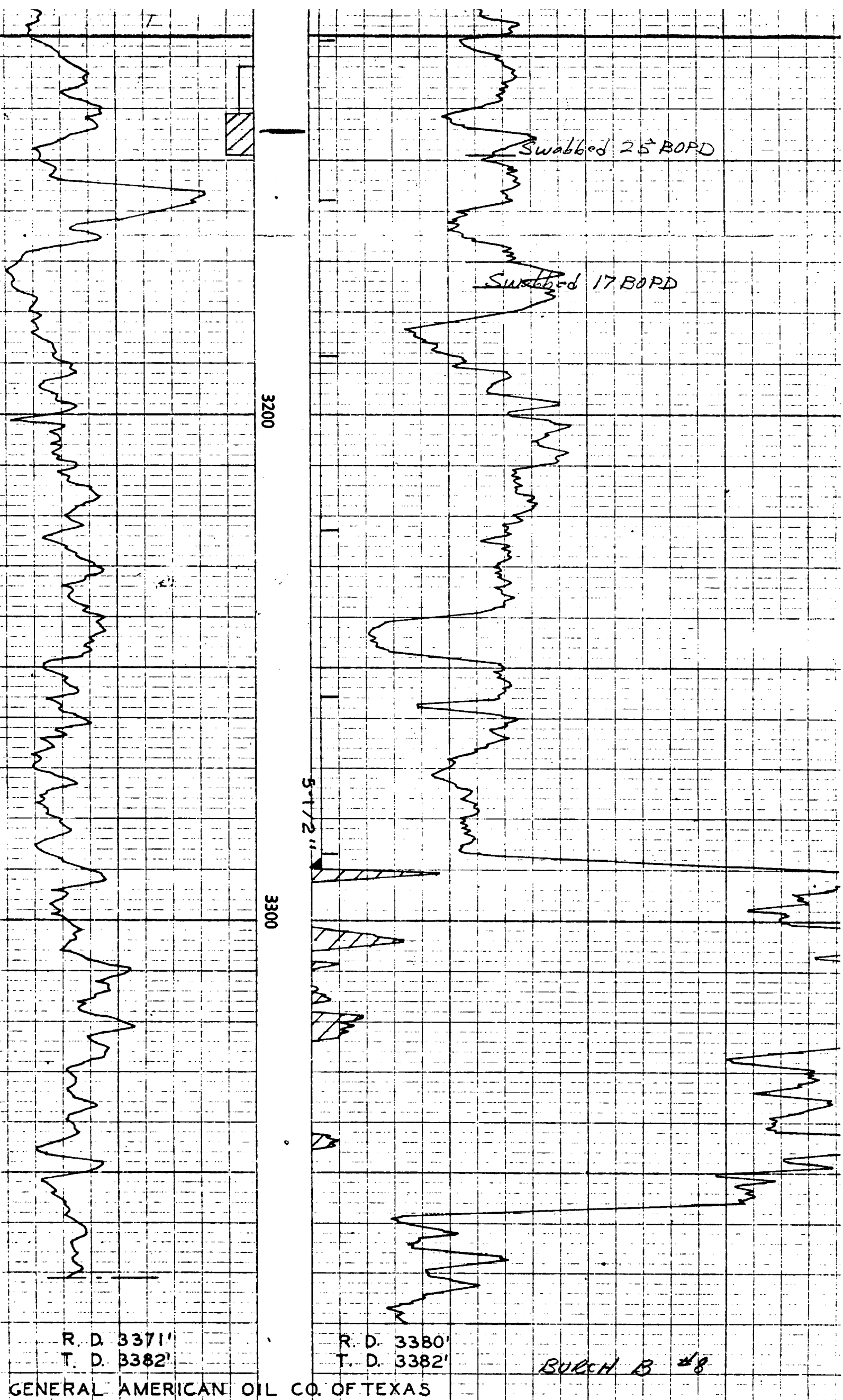
T. D. 3358'

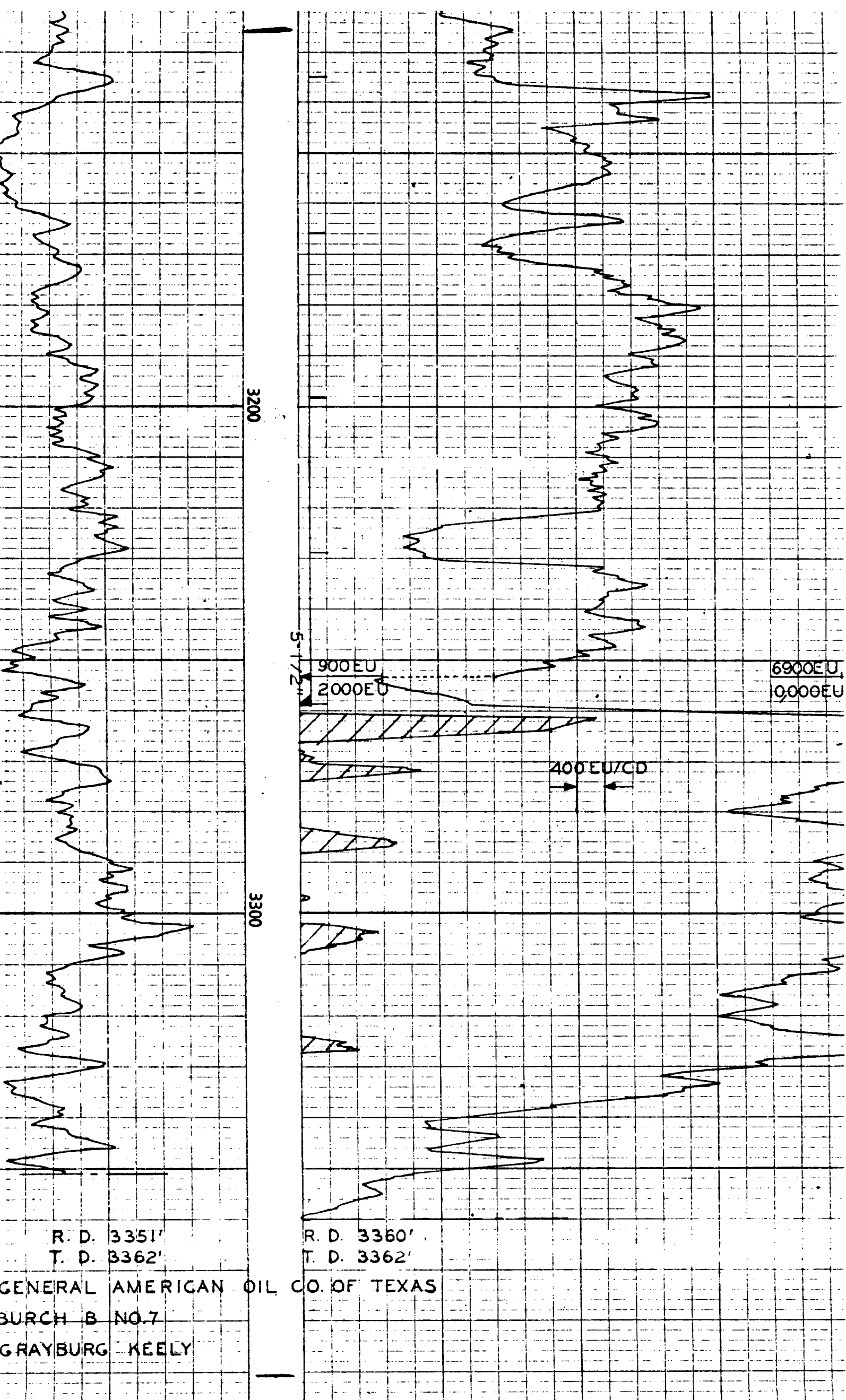
R. D. 3356'

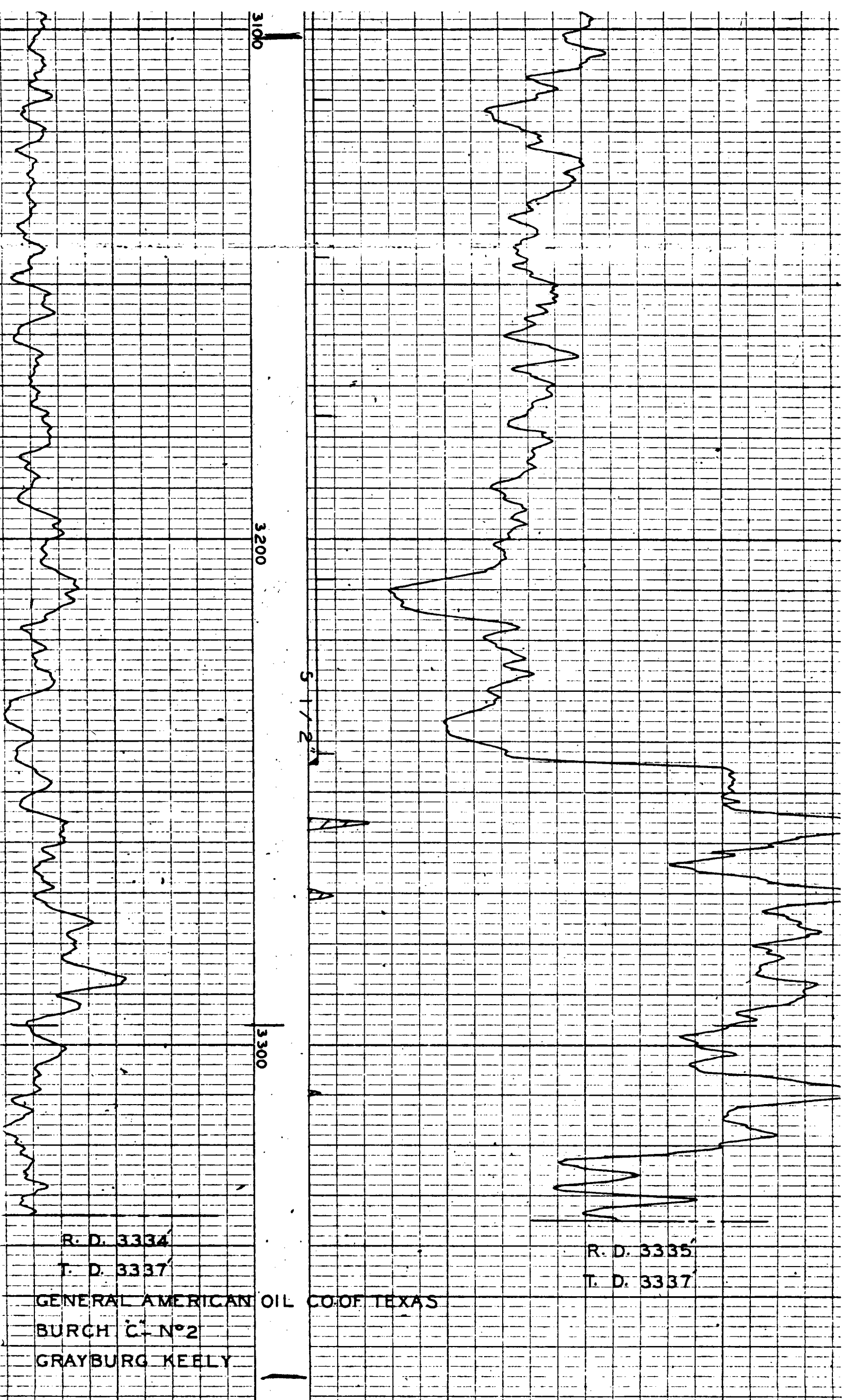
GENERAL AMERICAN OIL CO. OF TEXAS

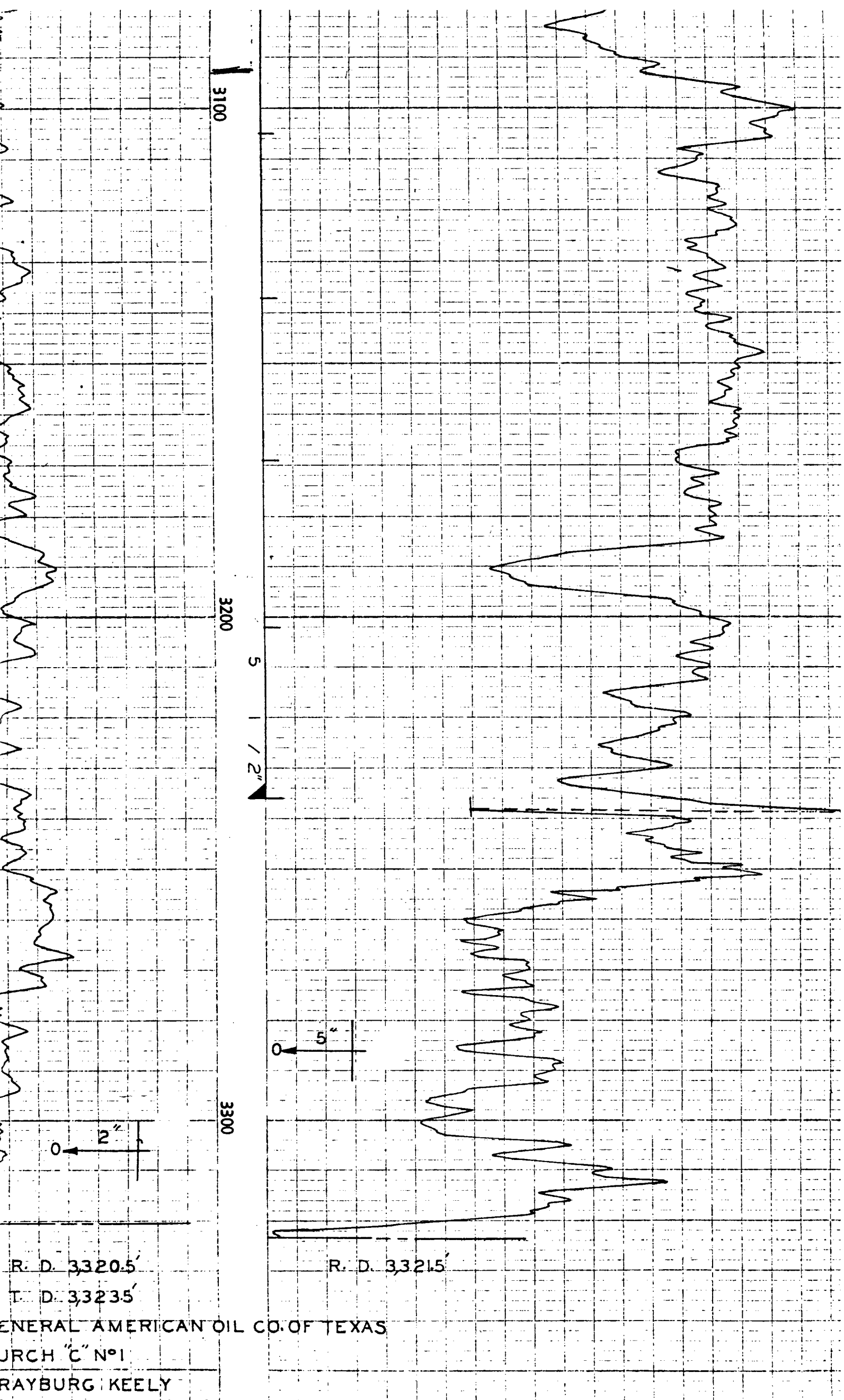
MURCH 6" N°7

GRAYBURG KEELY









R. D. 3320.5'

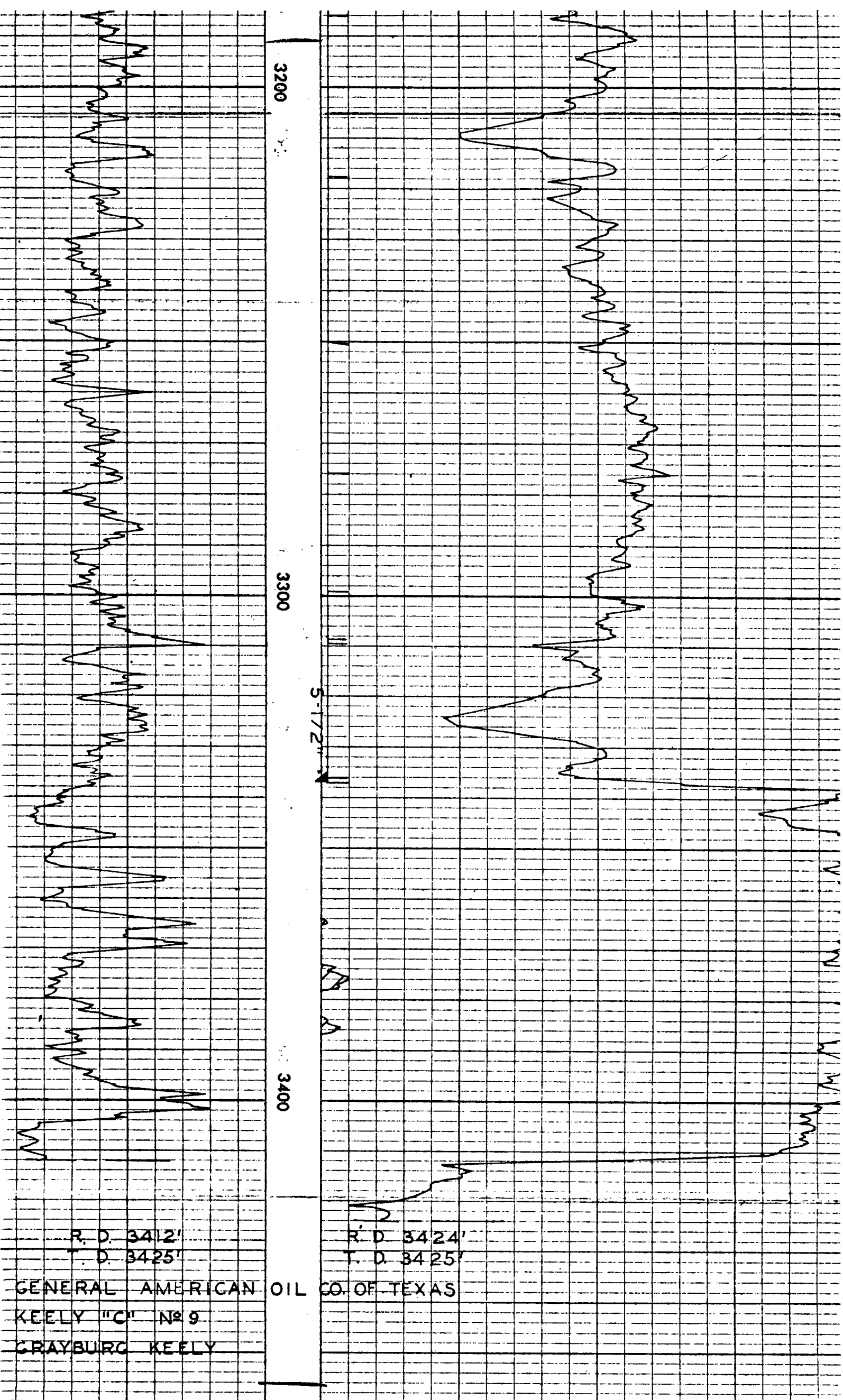
T. D. 33235'

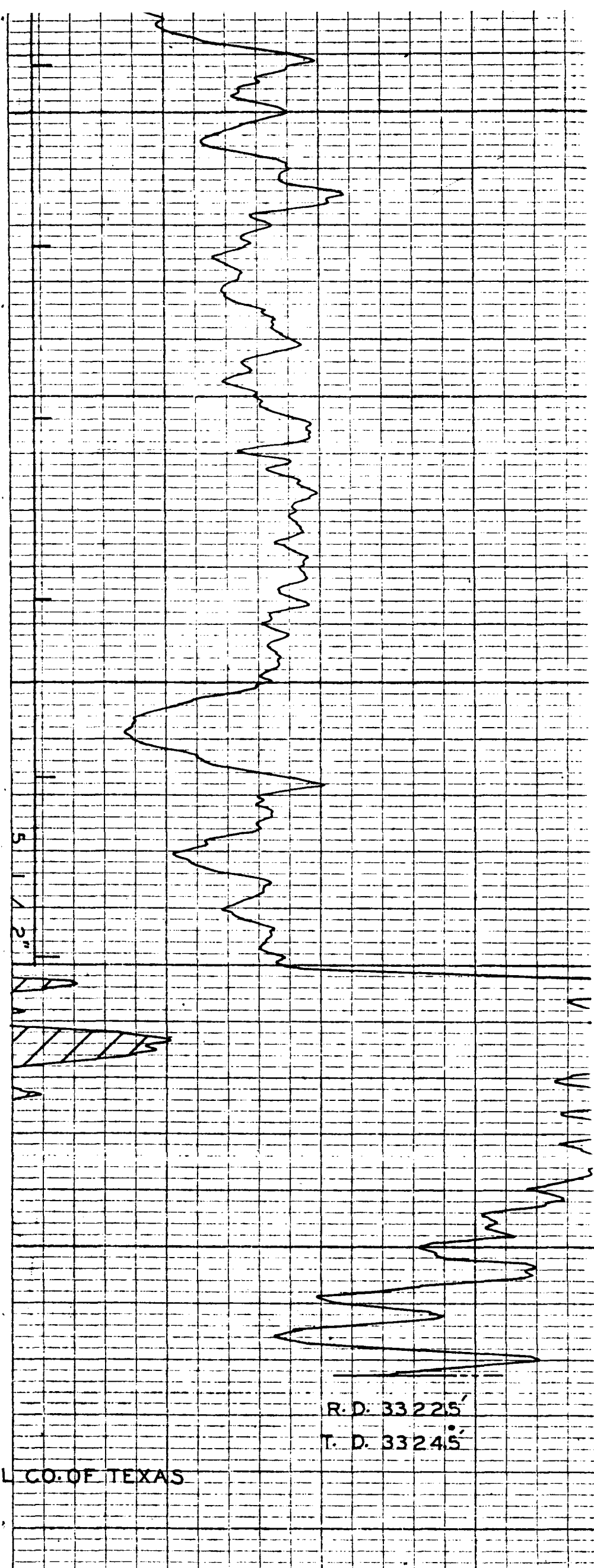
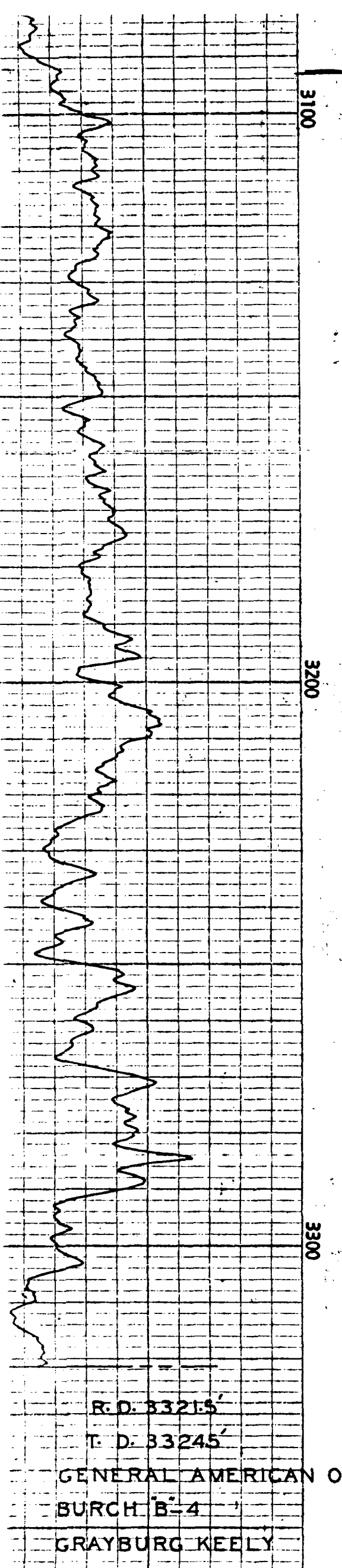
GENERAL AMERICAN OIL CO. OF TEXAS

SURCH "C" N°1

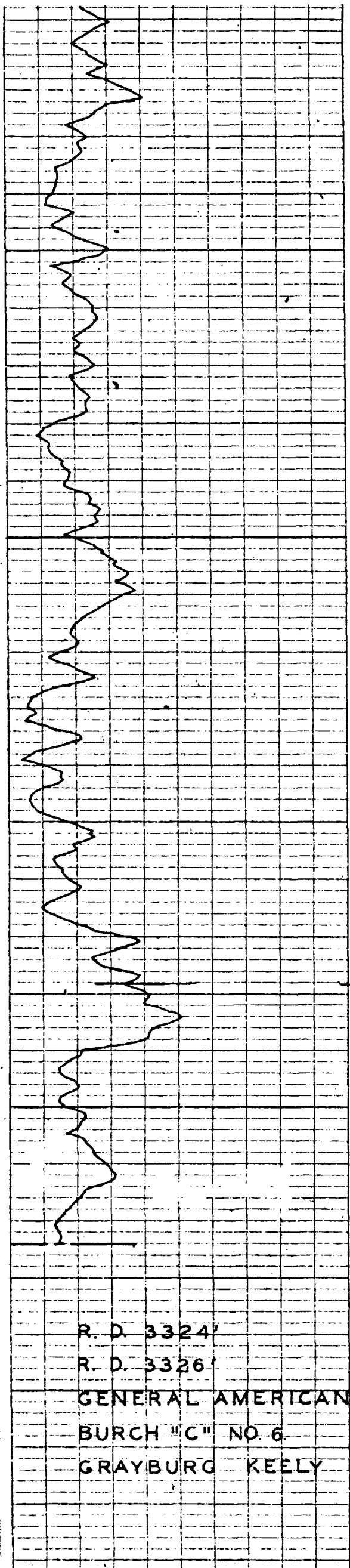
RAYBURG, KEELY

R. D. 33215'









3200

3300

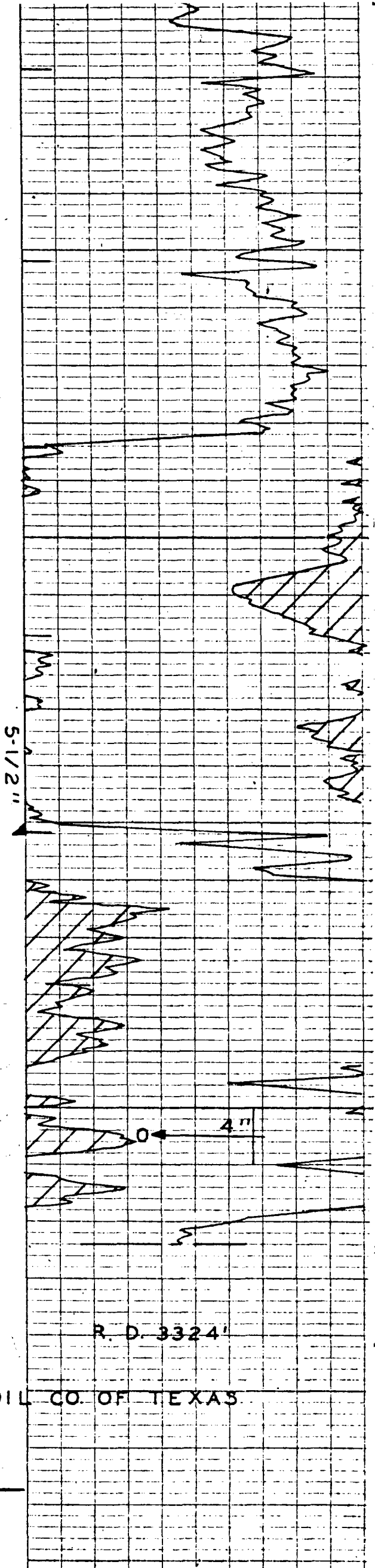
R. D. 3324'

R. D. 3326'

GENERAL AMERICAN OIL CO. OF TEXAS

BURCH "C" NO. 6

GRAYBURG KEELY

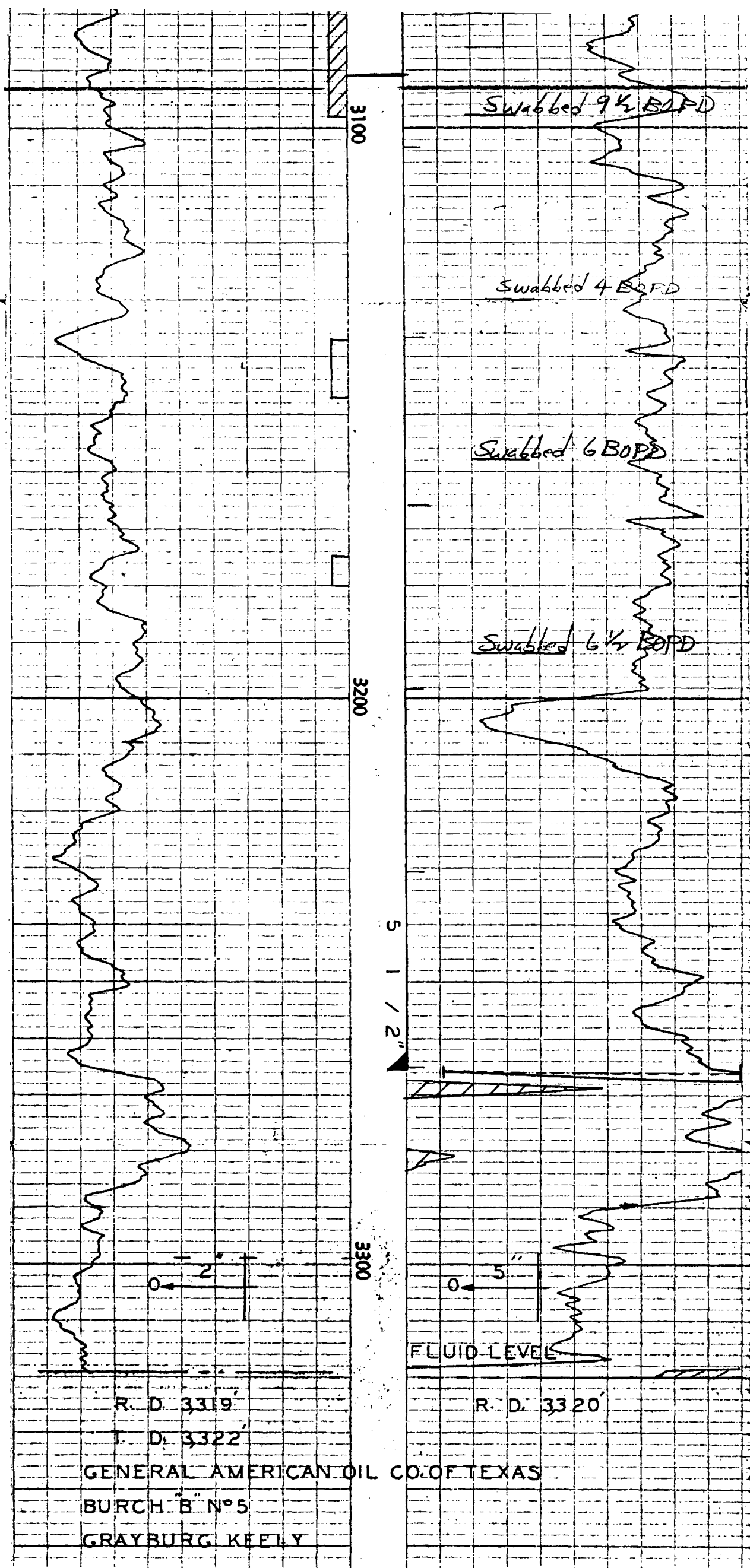


5-1/2"

R. D. 3324'

4"



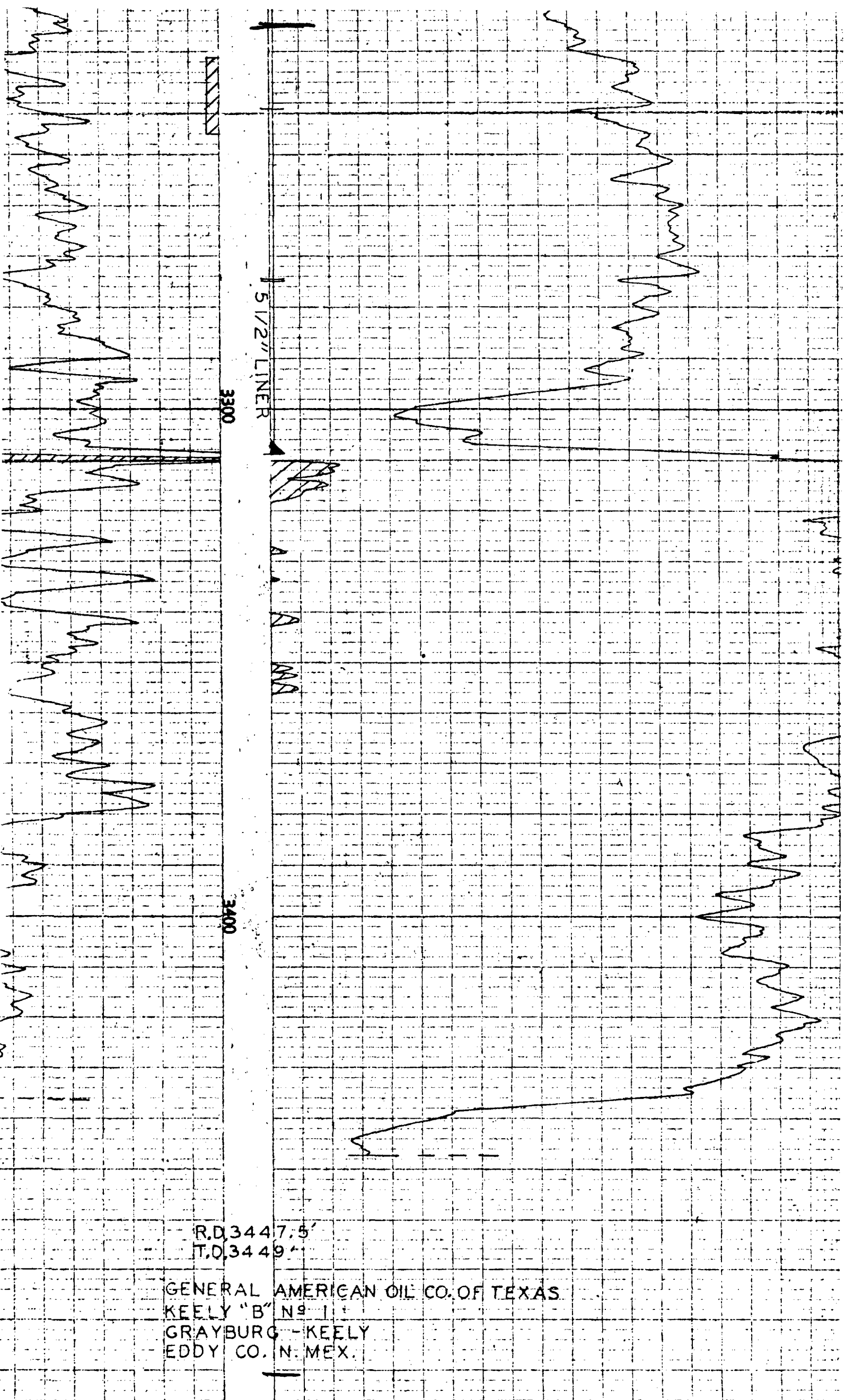


R. D. 3319'  
T. D. 3322'

GENERAL AMERICAN OIL CO. OF TEXAS  
BURCH "B" N°5  
GRAYBURG KEELY

R. D. 3320'

FLUID LEVEL



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

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:

NW  
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.

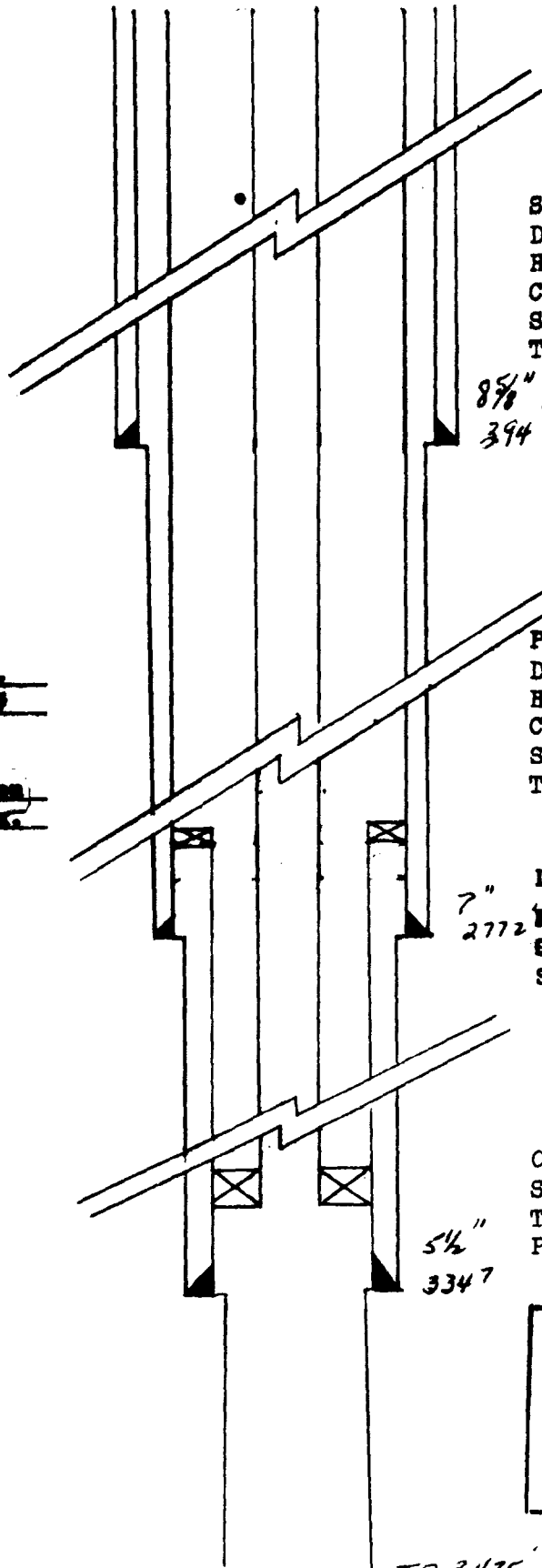
DONE at Santa Fe, New Mexico on the day and year hereinabove designated.

STATE OF NEW MEXICO

TYPE LOG

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

Lease and Well No.: Kealy "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" 24.5  
Sacks Cement: 50  
Top of Cement: \_\_\_\_\_

8 5/8"  
394'

**PRODUCTION CASING**

Depth Set: 2772'  
Hole Size: 8"  
Casing Size & Wt.: 7" 20.0  
Sacks Cement: 100  
Top of Cement: \_\_\_\_\_

7"  
2772'

**LINER**

Depth Set: 2702-3347  
Casing 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

**STEEL - PLASTIC COATED**

Depth Set: 3375' Approx.  
Size, Wt. & Type: 2" 4.75

**PACKER**

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

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

TO 3475'



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	
<i>Allyn</i>	EXHIBIT NO. <u>6</u>
CASE NO. <u>3358</u>	