N. M. - 293

TEXACO
INC.

PETROLEUM PRODUCTS

DRAWER 728
HOBBS, NEW MEXICO 88240

July 31, 1968

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

'68 Aug 1 PM 1

Re: Application for Administrative Approval for Conversion of Additional Wells to Water Injection
West Lovington Unit
West Lovington San Andres Pool
Lea County, New Mexico

Gentlemen:

TEXACO Inc. respectfully requests administrative approval to convert 8 additional wells to water injection in the West Lovington Unit, West Lovington San Andres Pool, Lea County, New Mexico. The following wells are proposed for conversion:

Well	Unit	Sec.	TWP	Rge.
West Lovington Unit Well No. 3	A	5	17S	36E
5	C	4	17S	36E
7	H	6	17S	36E
27	N	6	17S	36E
29	P	6	17S	36E
38	M	3	17S	36E
51	F	7	17S	36E
53	H	7	17S	36E

The West Lovington Unit Waterflood Project was approved by Order No. R-2071 dated October 9, 1961. The West Lovington Unit became effective January 1, 1962 and water injection commenced on February 18, 1963. Cumulative water injection to July 1, 1968 has been 10,541,431 barrels and is currently averaging 160,000 barrels per month. Oil production since unitization to July 1, 1968 has been 1,328,146 barrels.

The overall operation of this waterflood has been generally satisfactory. Response to water injection has been slow but steady, increasing at a rate of 17% per year until mid-1966 when it reached a plateau. Response has also been noted to be very sensitive to the water injection rate. The western half and northeastern periphery of the reservoir exhibits a definite reduction in permeability when compared to the eastern half of the reservoir. This is demonstrated by the variation in cumulative injection volumes in the two areas and shown by Figure III attached.

New Mexico Oil Conservation Commission

To improve production in the western and northern portions of the reservoir it is proposed to convert the subject wells to water injection. This will change the current 9-spot pattern to an 80-acre 5-spot pattern in the west portion of the field and to a modified peripheral pattern on the north and east. It is anticipated that water injection into these additional wells will be approximately 1900 BWPD. Water Rights Permits L-4084 and L-4085, Lea County Underground Water Basin, furnish water for the West Lovington Unit and the allotment is sufficient for all estimated future requirements.

The following attachments are submitted in accordance with Rule 701 (E)(5) in support of this request.

1. Lease Ownership Map of the area within two miles of each proposed injection well and the wells in this area with the formation from which the wells produce.
2. Logs on three of the proposed injection wells. (These are the only ones available.)
3. Diagrammatic sketch on each proposed injection well.
4. A plat of the West Lovington Unit with well test information for 1962 (prior to water injection) and for 1968. This is to show that each proposed injection well has either experienced response to water injection or is offset by a producing well which has experienced response. (Figure I)
5. A graph of the Unit production performance

A copy of this application is being furnished to each offset operator by mail on this date.

Yours very truly,

H. D. Raymond
District Superintendent

EDMc:ndb

WDH-AJG(RJA)

USGS - Roswell
NMOCC - Hobbs
All Offset Operators

OFFSET OPERATORS

WEST LOVINGTON UNIT
WEST LOVINGTON SAN ANDRES POOL
LEA COUNTY, NEW MEXICO

Amerada Petroleum Corporation
P. O. Box 312
Midland, Texas 79701

Aztec Oil and Gas Company
P. O. Box 847
Hobbs, New Mexico 88240

Cities Service Oil Company
P. O. Box 69
Hobbs, New Mexico 88240

Humble Oil and Refining Company
P. O. Box 1600
Midland, Texas 79701

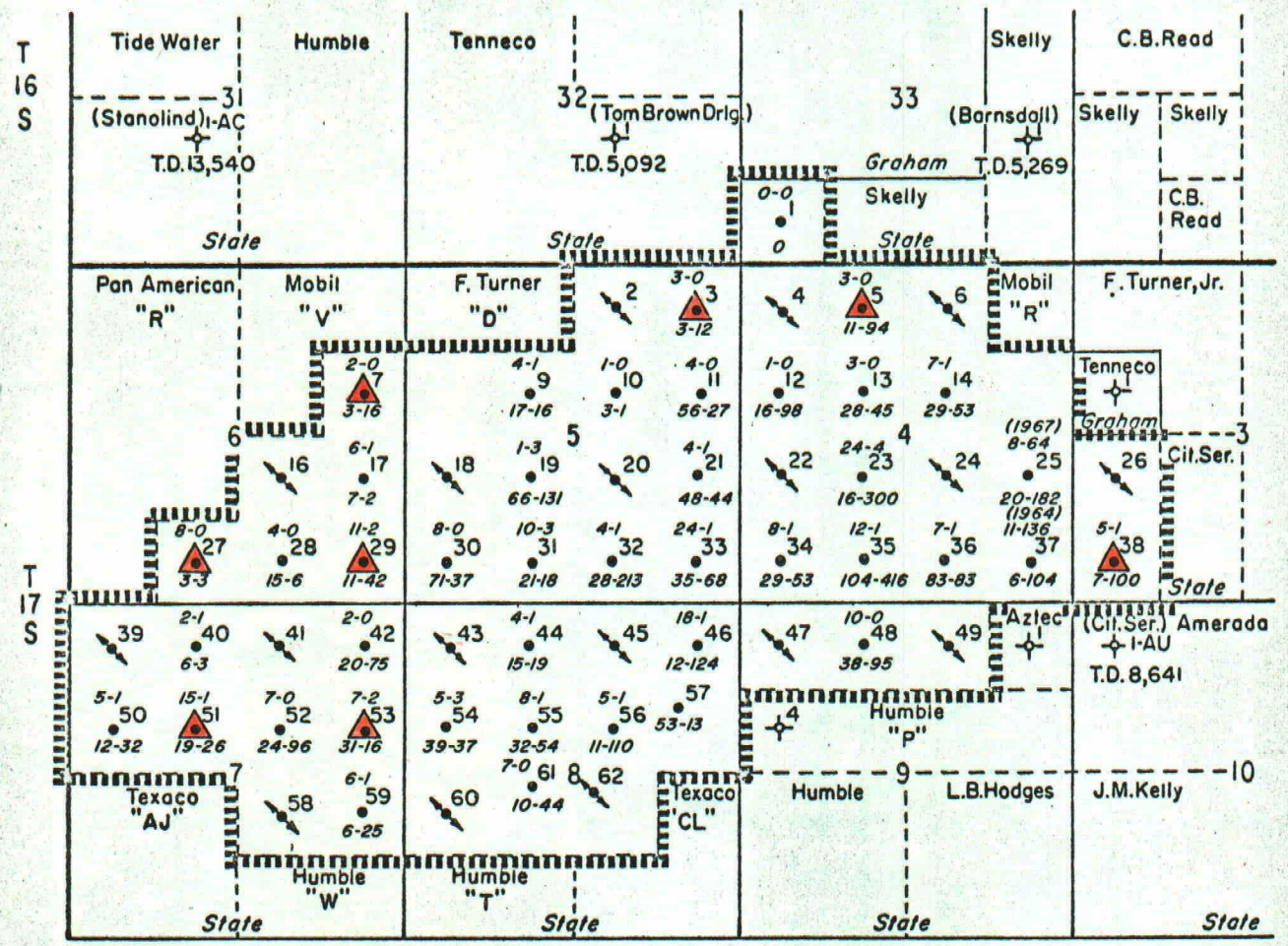
Mobil Oil Company
P. O. Box 633
Midland, Texas 79701

Pan American Petroleum Corporation
P. O. Box 1410
Fort Worth, Texas 76101

Skelly Oil Company
P. O. Box 730
Hobbs, New Mexico 88240

Tenneco Oil Company
900 Wilco Building
Midland, Texas 79701

Fred Turner, Jr. Estate
P. O. Box 910
Midland, Texas 79701



R-36-E

FIGURE I

LEGEND:

1962 TEST
7-0
OIL
WATER
24-96
1968 TEST

▲ Proposed Water Injection Well

TEXACO Inc.
HOBBS DISTRICT

WEST LOVINGTON UNIT
Lea County, New Mexico

DAILY OIL-WATER PRODUCTION
PRIOR TO WATER INJECTION
AND CURRENT

Scale: 1" = 3,000'

EDMc/FMR 7-30-68

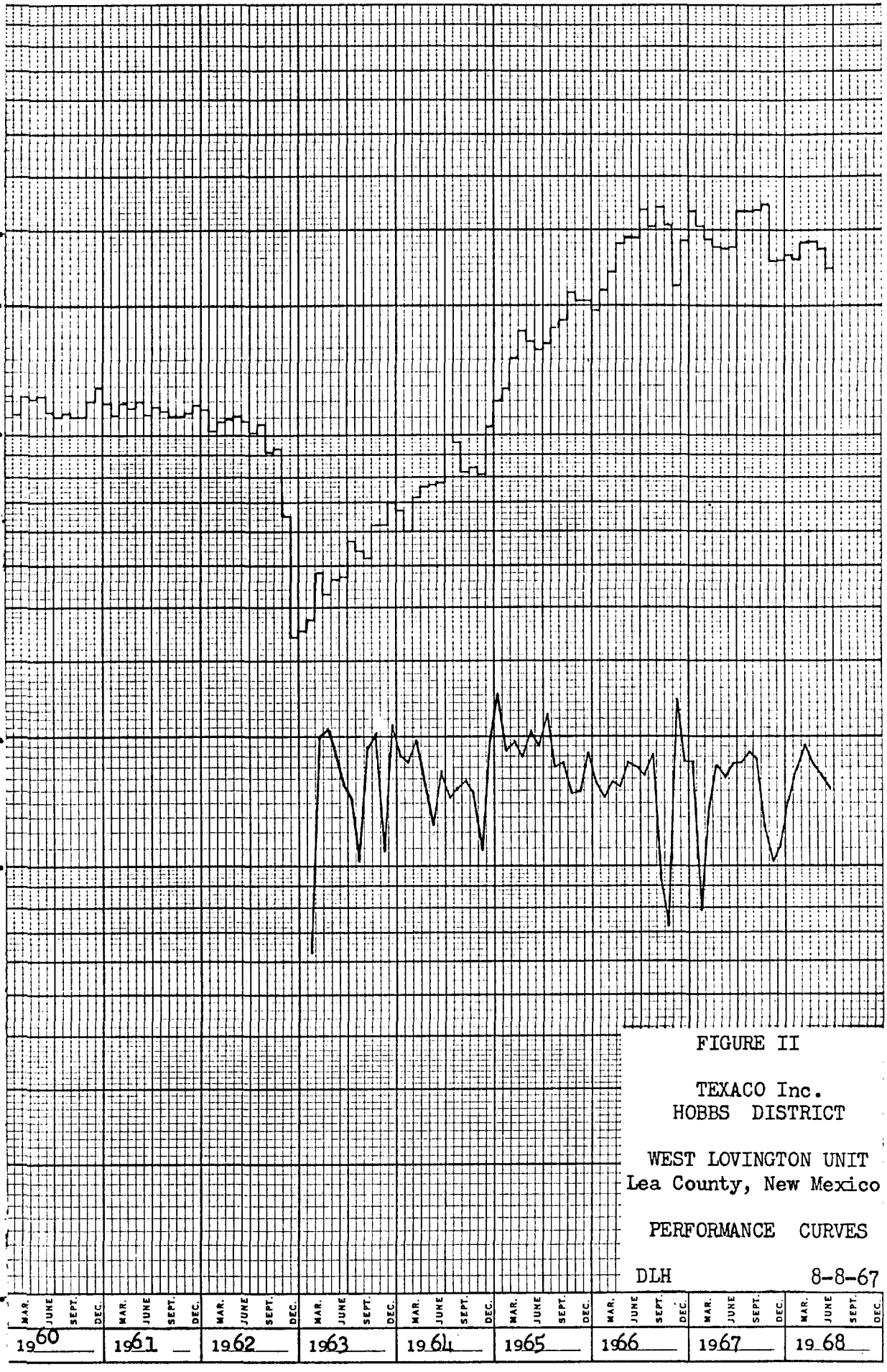


FIGURE II

TEXACO Inc.
HOBBS DISTRICT

WEST LOVINGTON UNIT
Lea County, New Mexico

PERFORMANCE CURVES

DLH 8-8-67

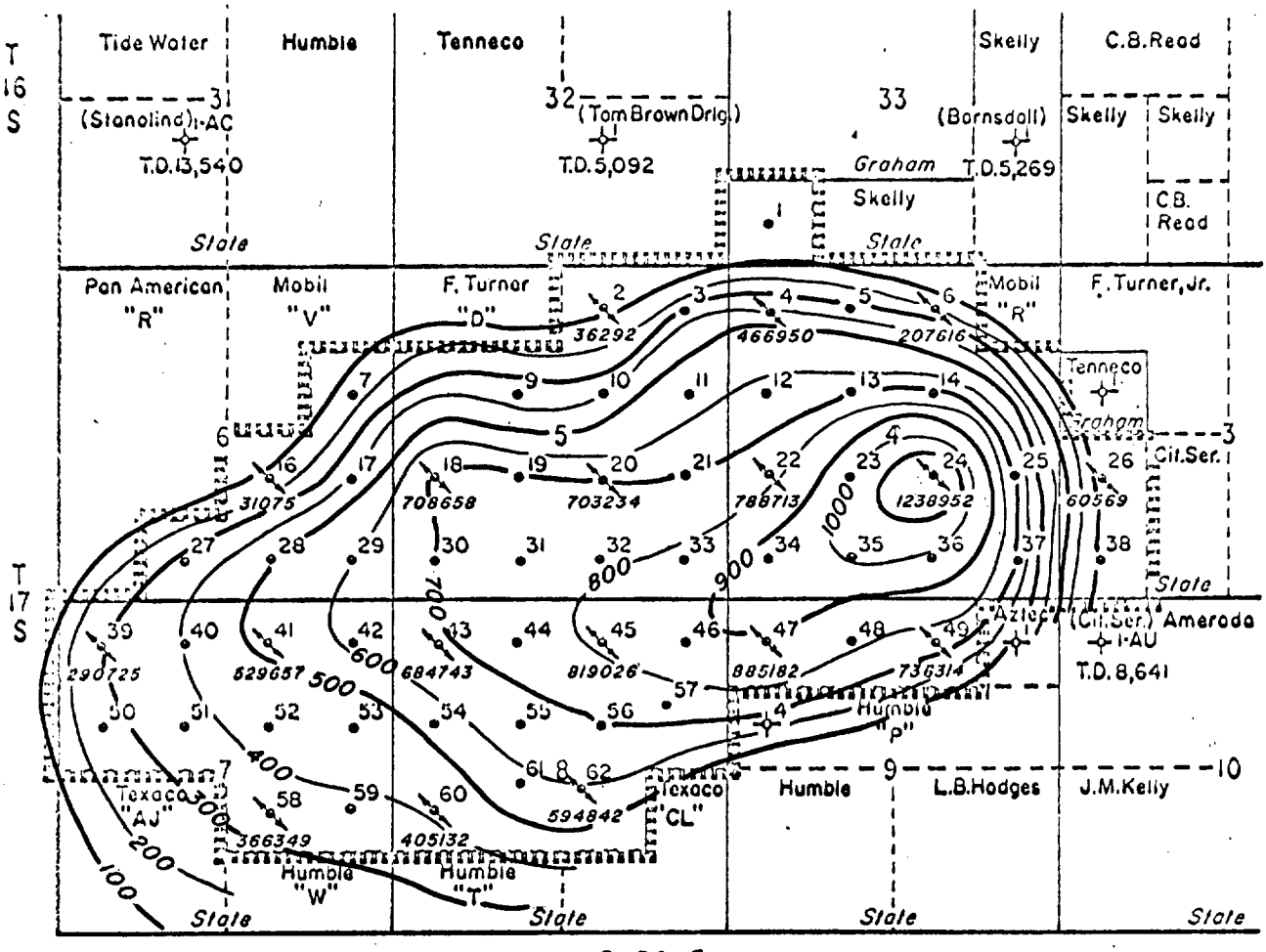


FIGURE III

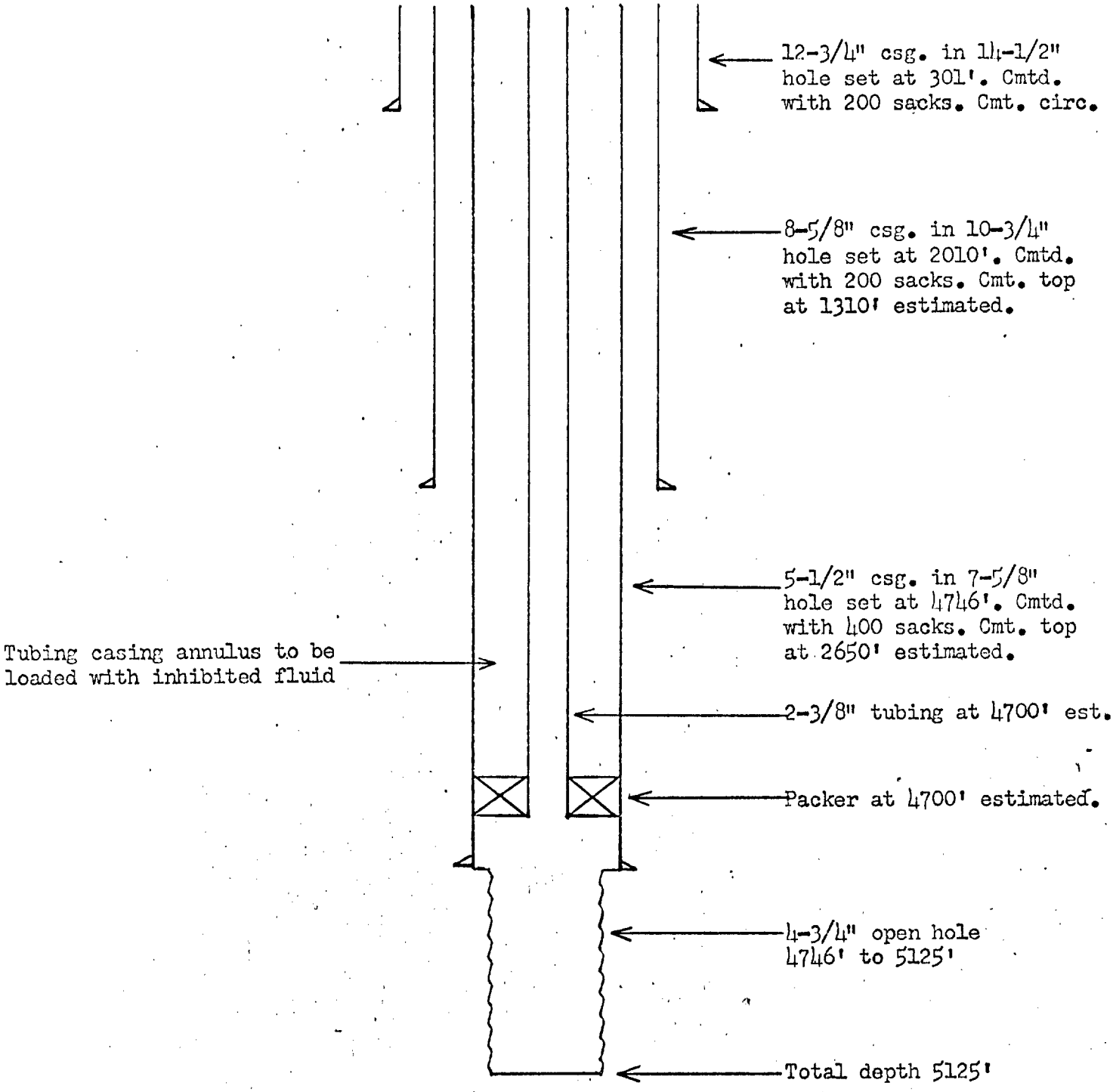
TEXACO Inc.

WEST LOVINGTON UNIT
Lea County, New Mexico

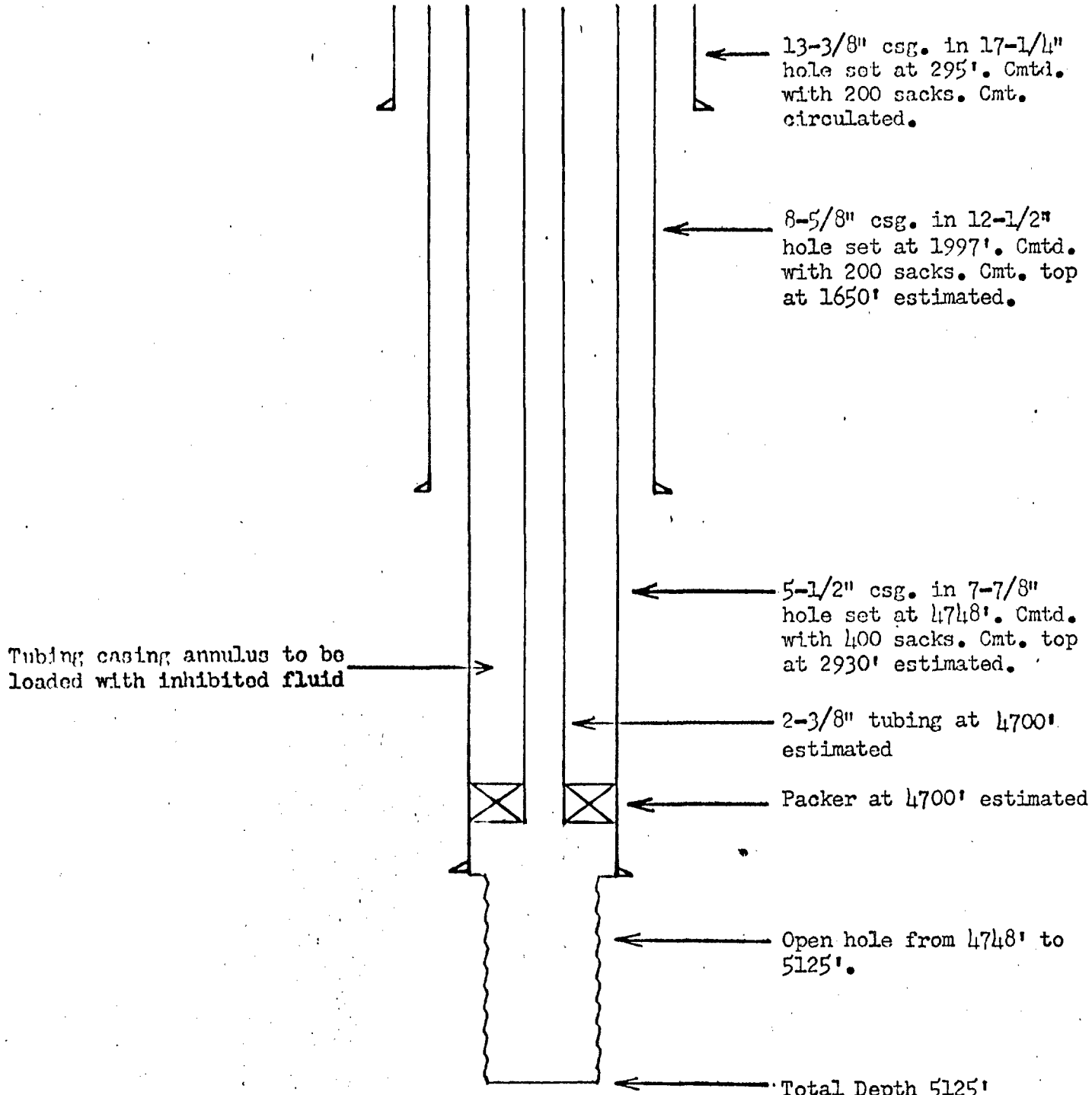
CUMULATIVE WATER INJECTION
TO JAN. 1, 1968
(In Barrels)

Scale: 1" = 3,000'

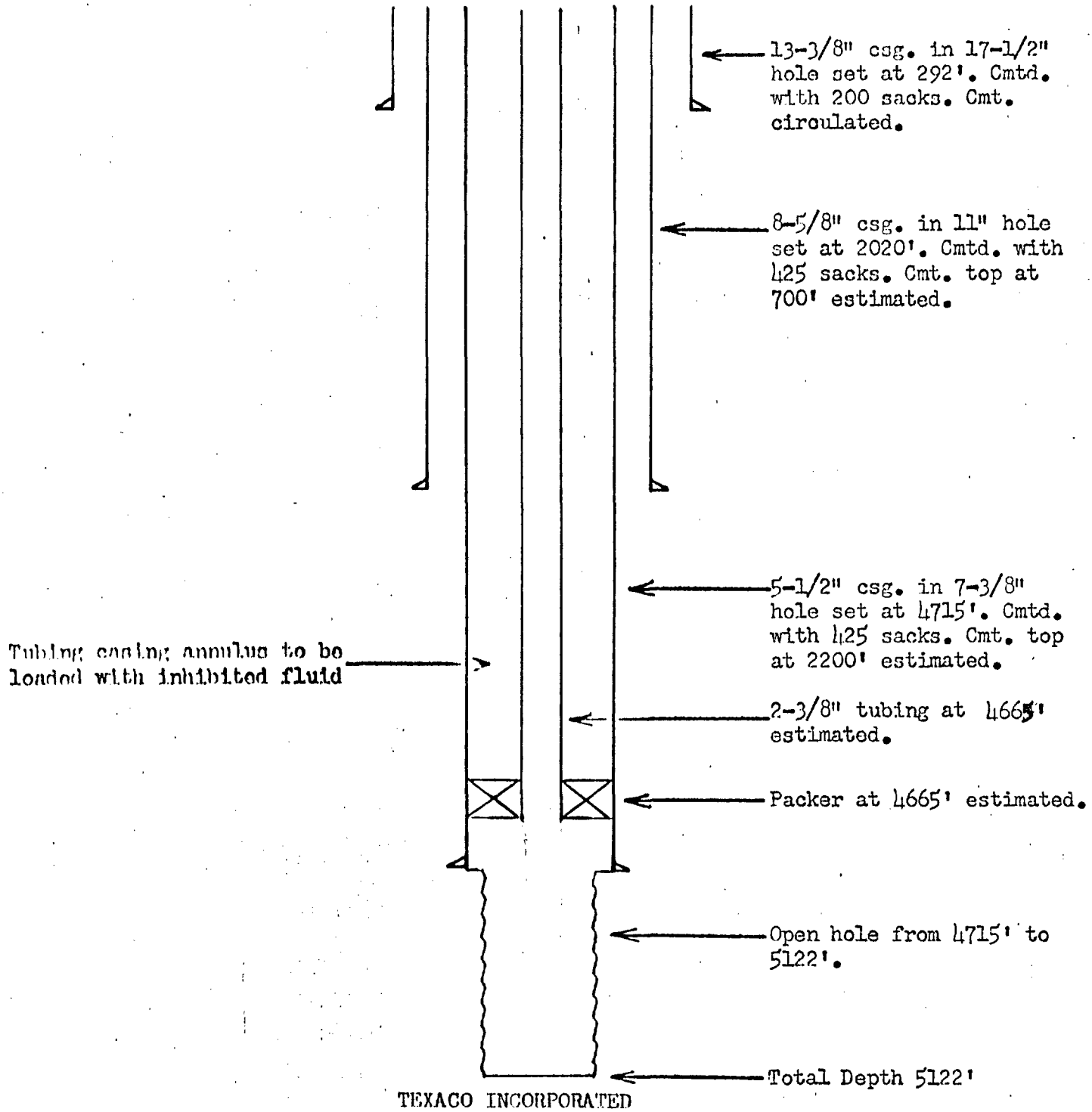
KWH/FMR 4-1-68



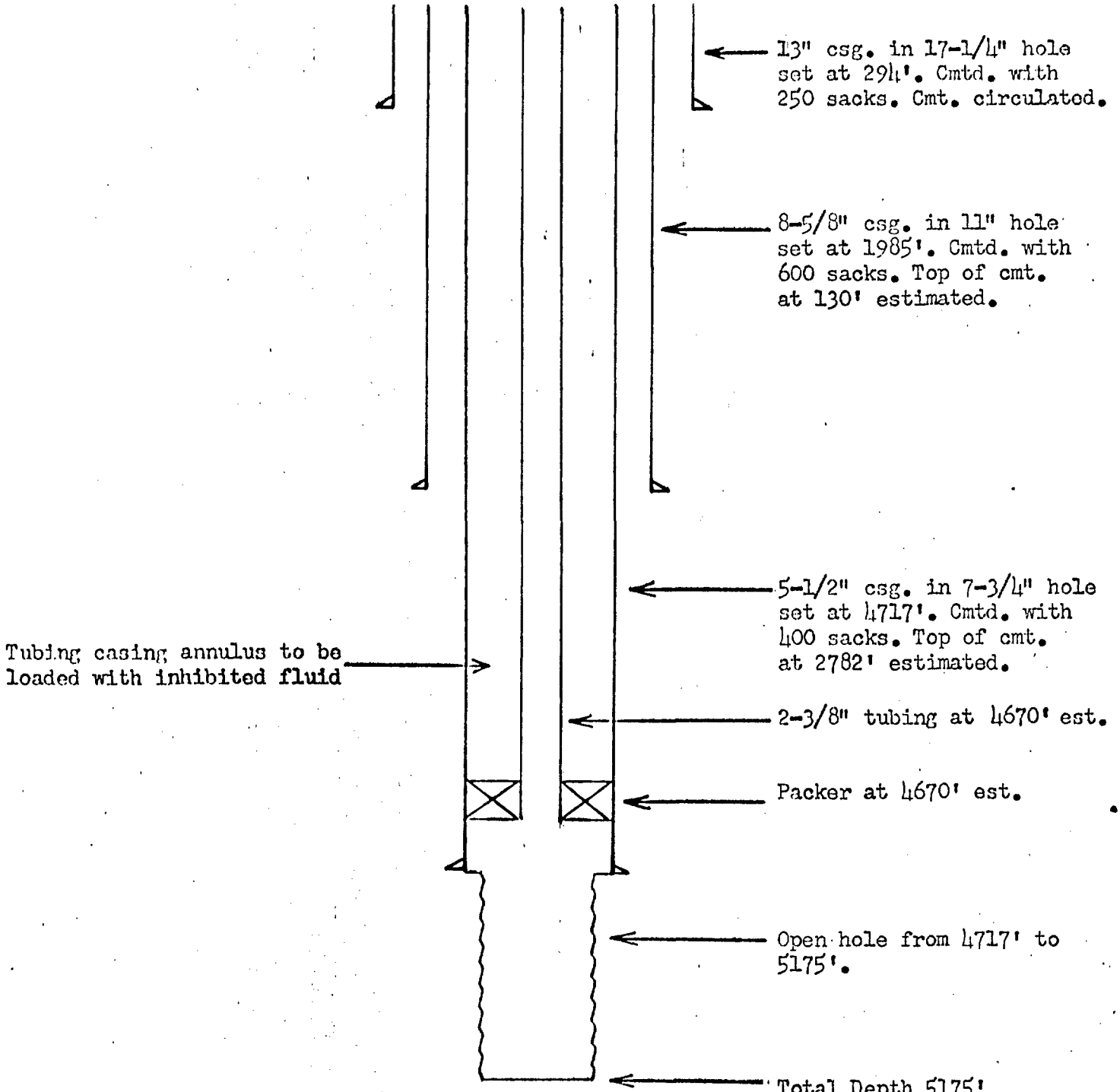
TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 3
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO



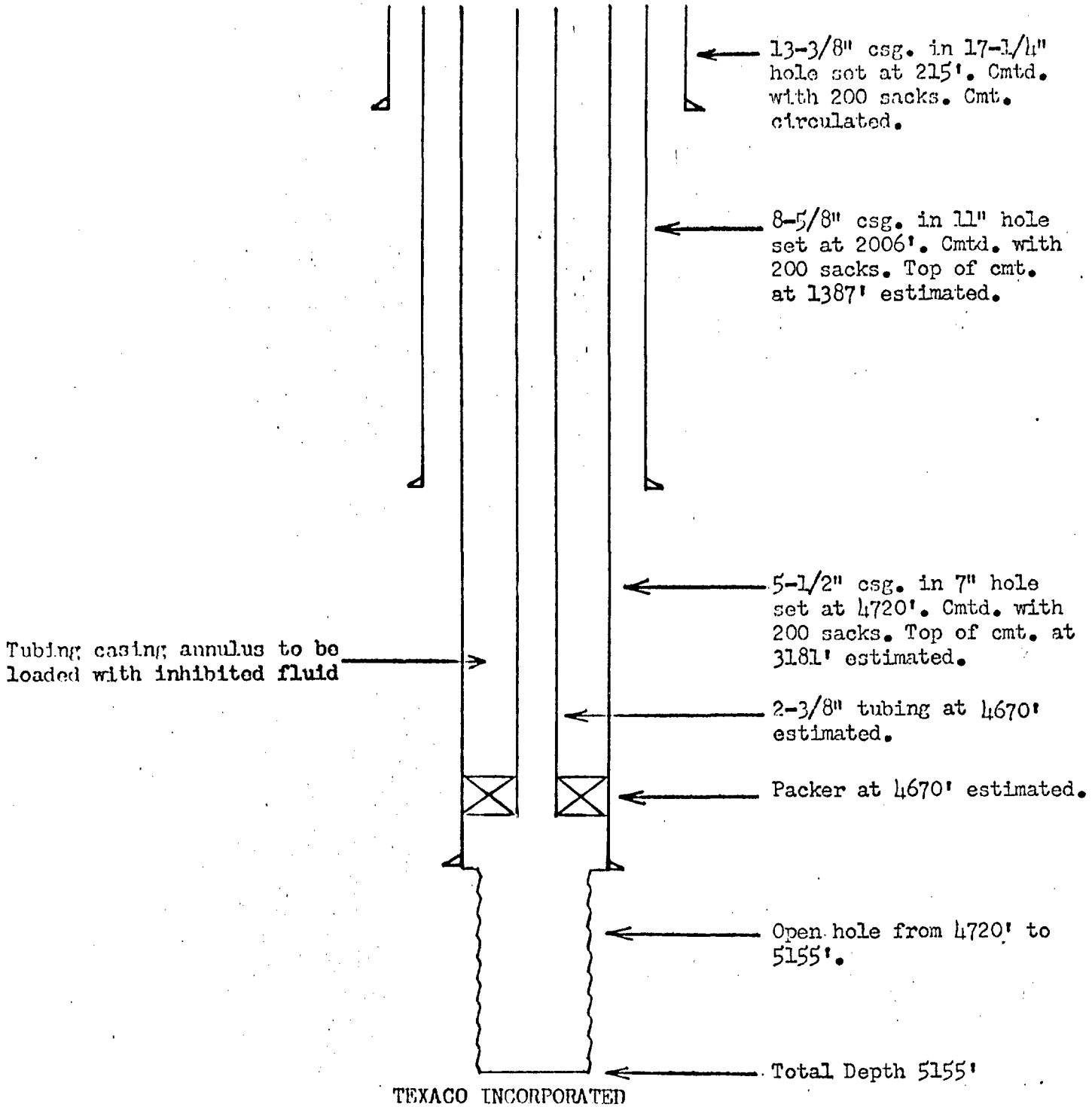
TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 5
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO



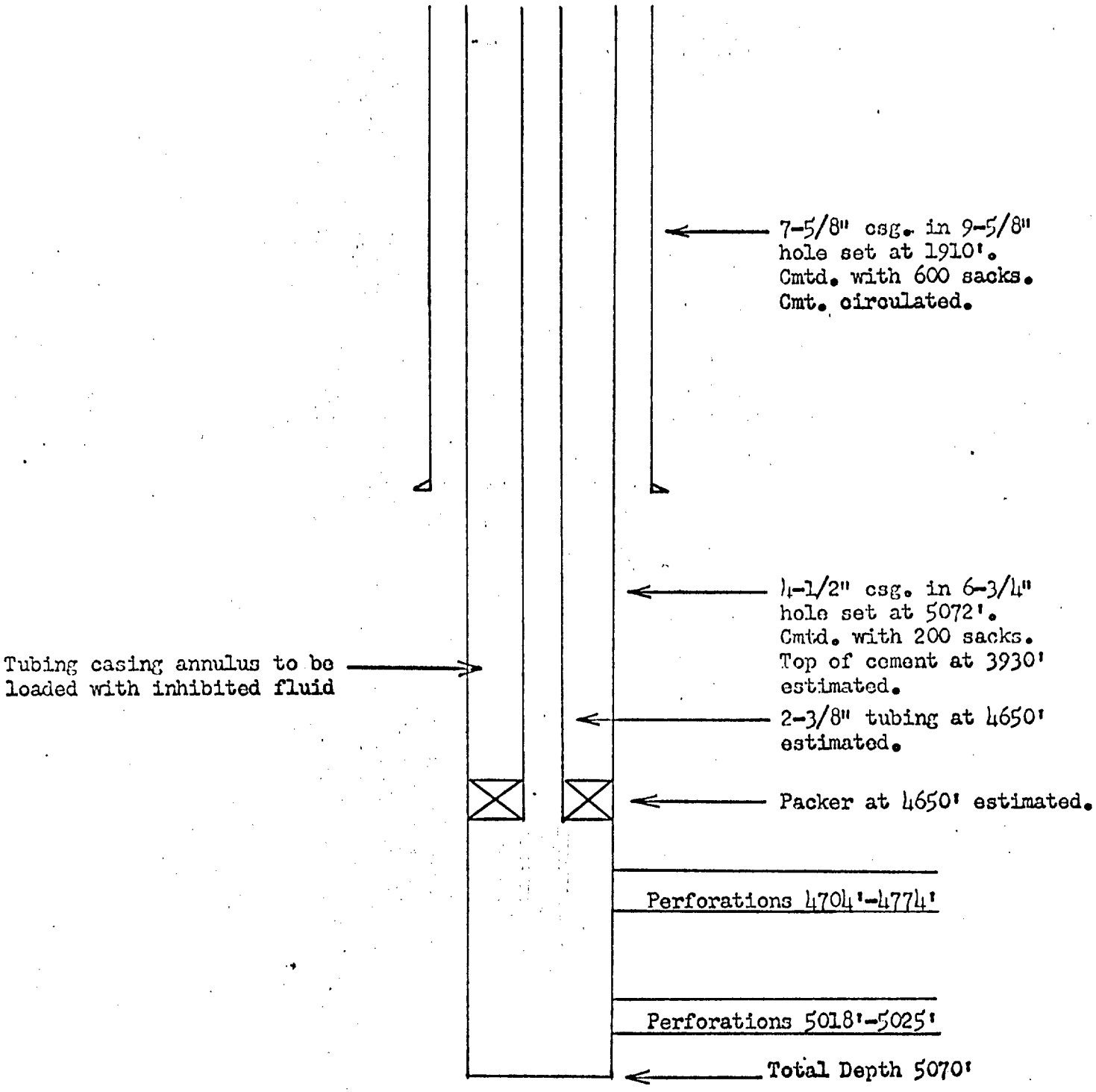
TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 7
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO



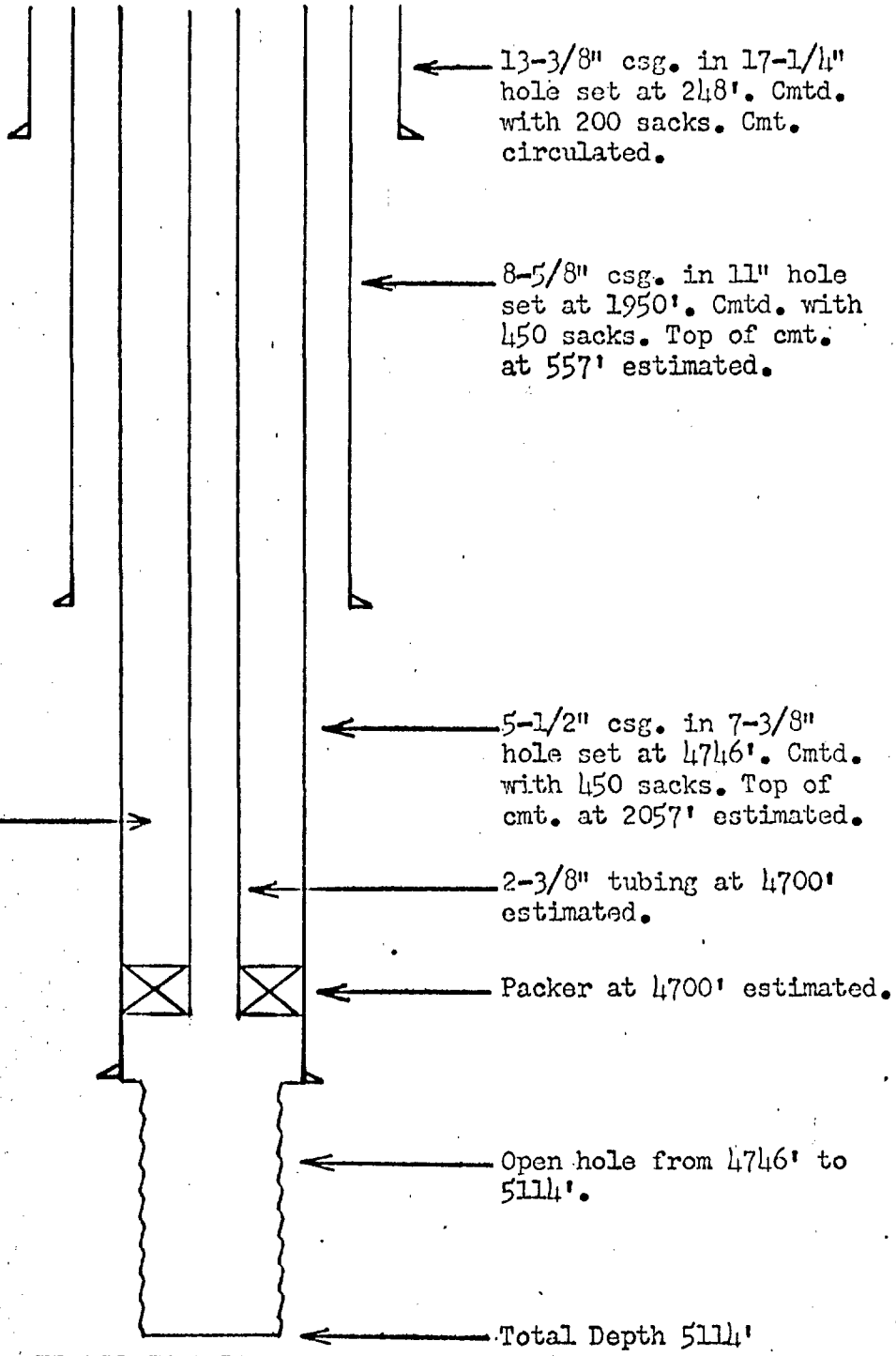
TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 27
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO



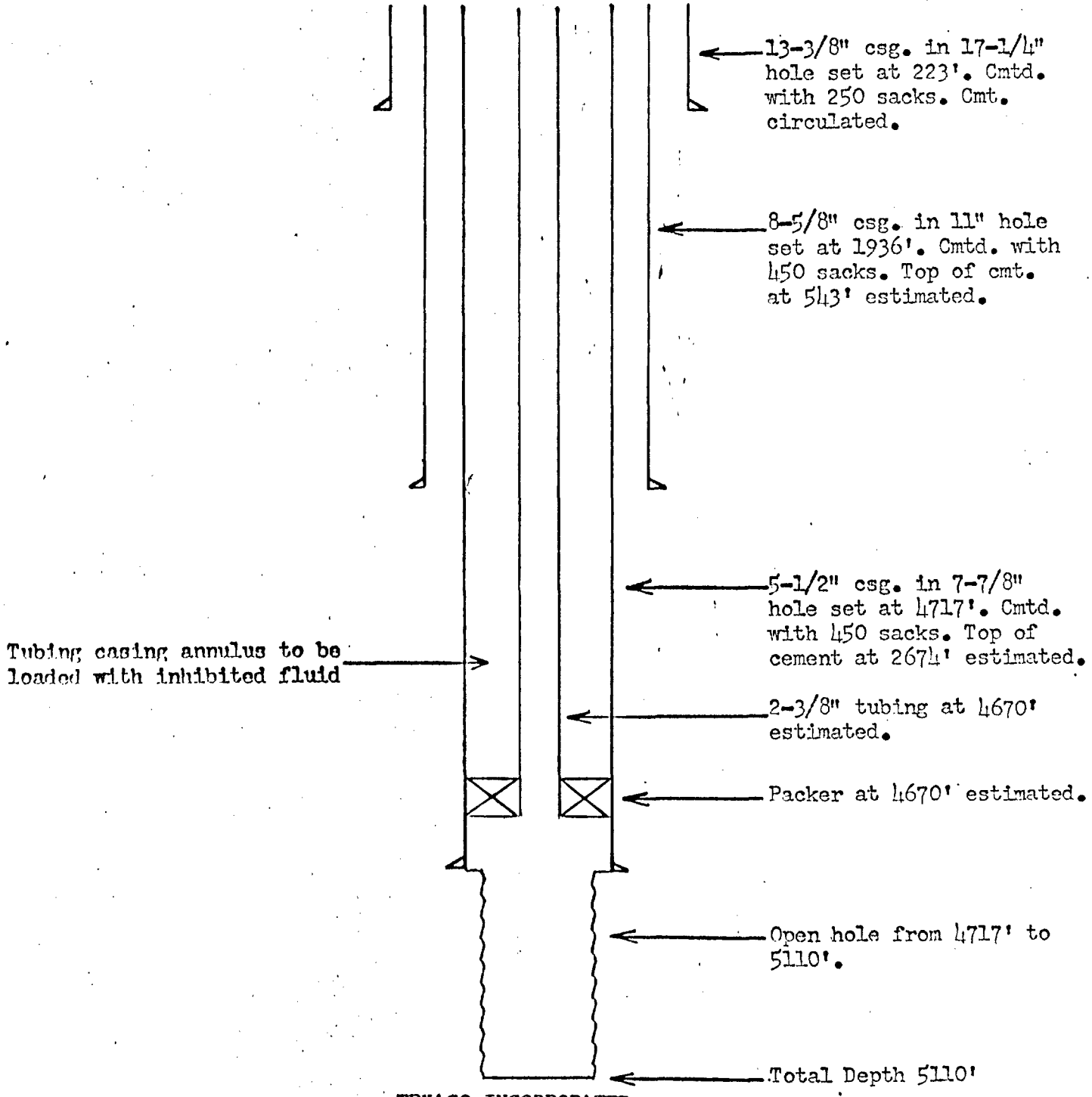
TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 29
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO



TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 38
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO



TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 51
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO



TEXACO INCORPORATED
WEST LOVINGTON UNIT WELL NO. 53
WEST LOVINGTON FIELD
LEA COUNTY, NEW MEXICO

LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE

WEST Lovington Unit #38

WELEX

RADIOACTIVITY LOG

COMPANY TEXACO INCORPORATED
WELL CITIES SERVICE-FEDERAL #1
FIELD WEST LOVINGTON
County LEA
State NEW MEXICO
File

COMPANY TEXACO INCORPORATED
WELL CITIES SERVICE-FEDERAL #1 (West Lovington Unit #1) 1903
FIELD WEST LOVINGTON
COUNTY LEA STATE NEW MEXICO

Location
660'FSL 660'FWL
SEC.3 TWP.17-S
RGE.36-E
Sec. Twp Rge

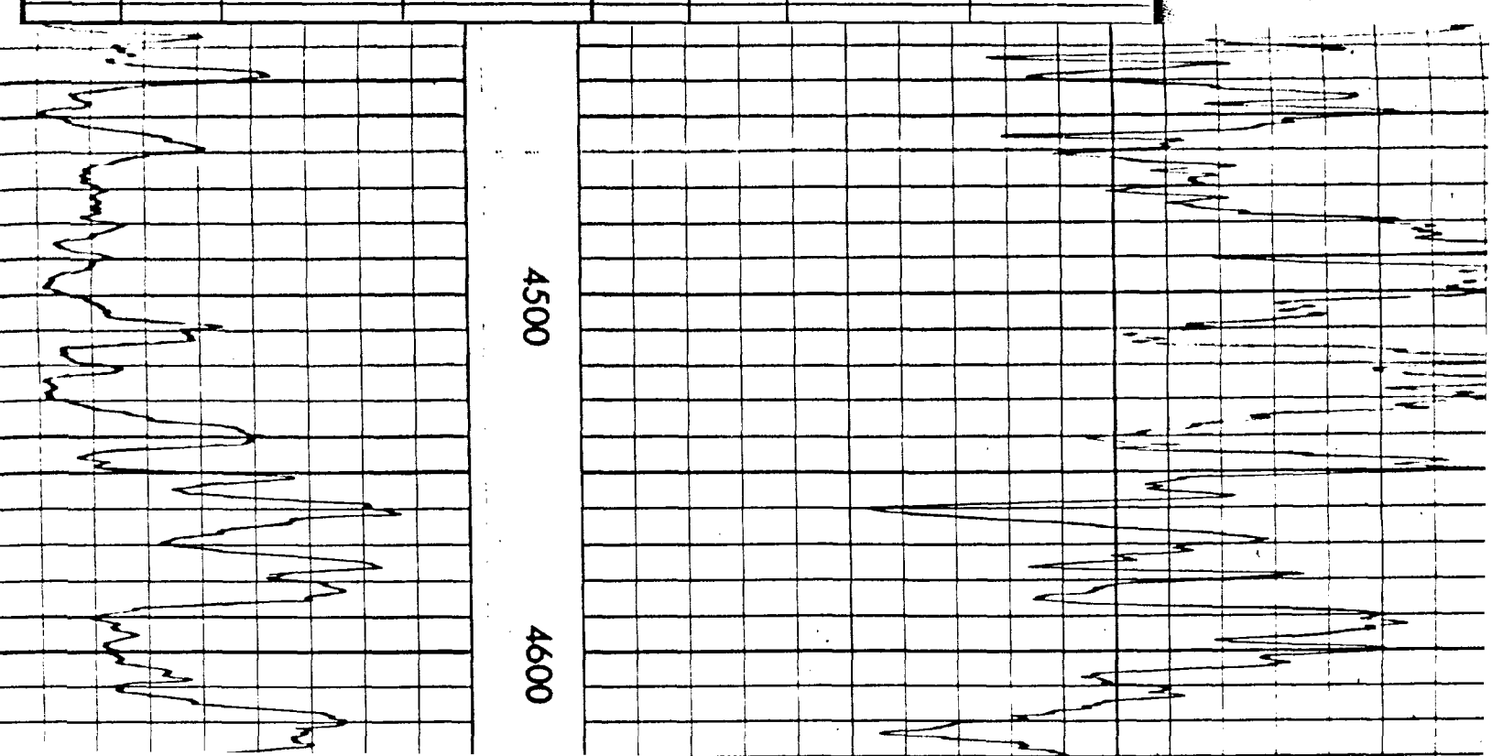
Other Logs

Elevation
KB. 3878
DF. 3877
GL. 3867

Permanent Datum GROUND LEVEL Elev. 3867
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Type Log	GAMMA	N.GAMMA		
Run No.	- 1 -	- 1 -		
Date	9-21-60	9-21-60		
Total Depth Driller	5072	5072		
Present Depth Driller	5072	5072		
Total Depth Welex	5077	5077		
Survey Begins	5077	5077		
Survey Ends	SURF.	SURF.		
Mud Data	STARCH, AQUAGEL			
Type Fluid in Hole	MUD	MUD		
Salinity PPM Cl	176,000	176,000		
Weight lb./gal.				
Fluid Level	30	30		
Max. Hole Temp.	104°	104°		
Recorded By	G.E.AYRES			
Witnessed By	MR.BURCH			

Run	BORE HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	9-7/8"	0	1910	7-5/8"		0	1910
	6-3/4"	1910	5072				



LANE WELLS COMPANY

RADIOACTIVITY LOG

Location of Well

WLU #53

3901' G.L.
3909.55' D.F.

COMPANY: THE TEXAS COMPANY
WELL: STATE "AH" NO. 10 FILE:
FIELD: SOUTHWEST LOVINGTON
COUNTY: LEA STATE: N.M.
LOCATION: SE/4 OF NE/4 OF
SEC. 7-17S-36E

COMPANY: THE TEXAS COMPANY
WELL: STATE "AH" #10 FILE:
FIELD: SOUTHWEST LOVINGTON
COUNTY: LEA STATE: N.M.
LOCATION:

LOG MEASURED FROM ROTARY TABLE ELEVATION 3911.05'
DRILLING MEASURED FROM R. TABLE ELEVATION 3911.05'
PERMANENT DATUM 5½" BRADEN HEAD ELEVATION 3902.5'

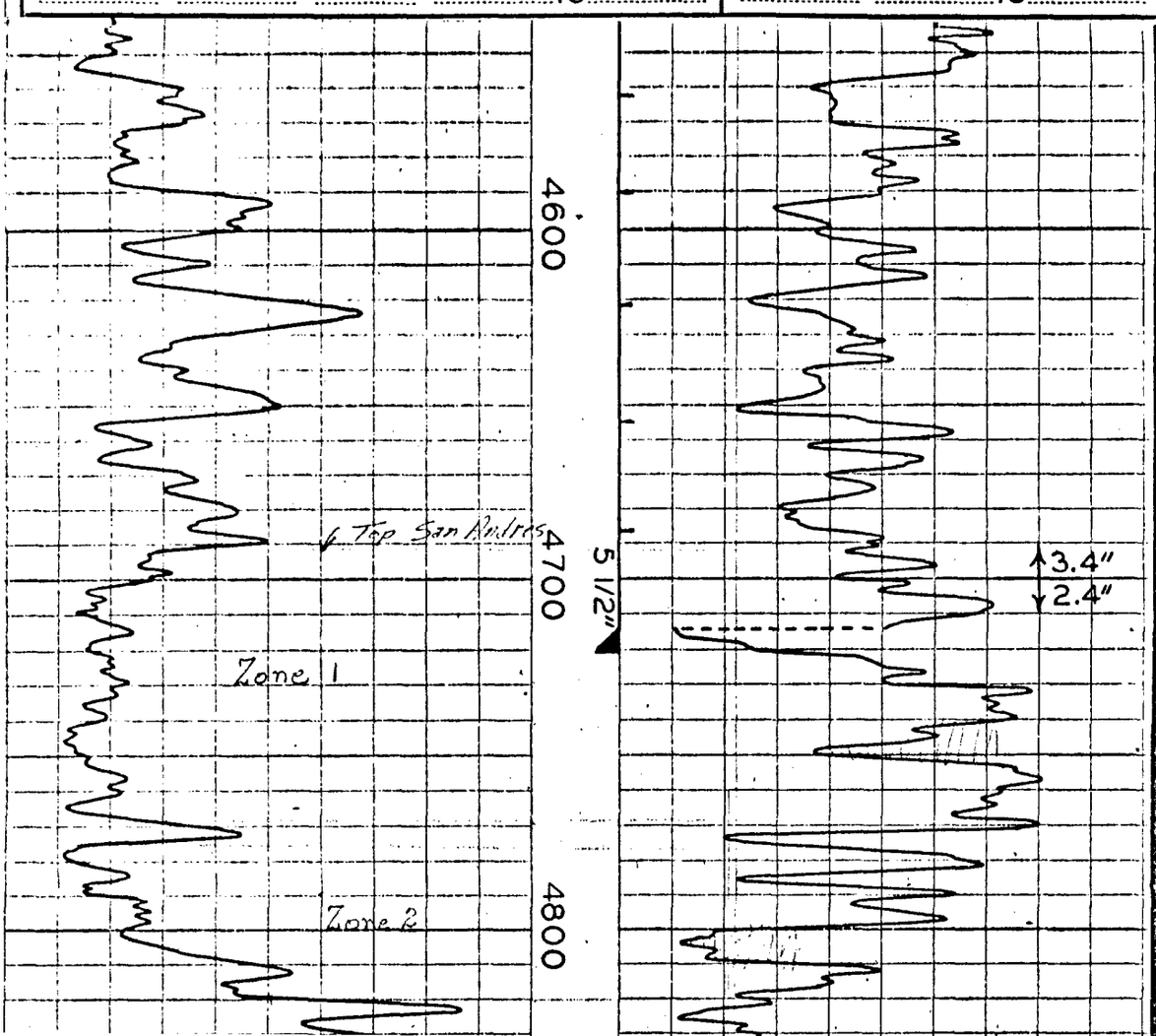
	1	1		
RUN NUMBER				
TYPE OF LOG	GAMMA RAY	NEUTRON		
DATE	APR 23-48	APR 23-48		
COMPANY DEPTH STEEL LINE	5110'	5110'		
MAXIMUM DEPTH REACHED	5108'	5108'		
WELL FLUID	OIL	OIL		
FLUID LEVEL	FULL	FULL		
MAXIMUM TEMPERATURE				
O.D. OF INSTRUMENT—INCHES	3 5/8"	3 5/8"		
SENSITIVITY REFERENCE	274	275		
RECORDED BY	KELLY	KELLY		
WITNESSED BY	WEBBER	WEBBER		

CASING RECORD

RUN NO.	SIZE—IN.	WT.—LB.	INTERVAL
1	8 5/8		SURFACE TO 1930'
1	5 1/2		SURFACE TO 4721'
			TO
			TO
			TO

OPEN HOLE RECORD

BIT SIZE—IN.	INTERVAL
4 3/4	4721' TO T.D.
	TO
	TO
	TO
	TO



Halliburton
OIL WELL CEMENTING CO.

ELECTRIC WELL LOG

WEST Lovington Unit #29

COMPANY THE TEXAS COMPANY

WELL STATE - AH - #4

LOCATION

FIELD OR AREA West Mount

COUNTY Lea STATE New Mexico

Datum this log Top Rotory Table

Elevation ft., distance to surface csg. flange ft.

RUN NUMBER	2	
Date,	April-4-1945	
Bottom recording, ft	5154	
Top recording, ft	4721	
Footage logged, ft	433	
Casing shoe—elec. log, ft	4721	
Casing shoe—driller, ft	4720	
Total depth—driller, ft	5155	
MUD		
Kind		
Treatment		
Weight, lbs per gal		
Viscosity,		
Impedance, ohms per m'm		
Filter loss,		
Hole size, in	to 4 3/4 ft	to T. D. ft
in	to ft	to ft
Max. recorded temp., deg. F