Case Number

4005

Large

Exhibits

SCHLUMBERGER

BOREHOLE COMPENSATED SONIC LOG GAMMA RAY

SCHLUMBERGER WELL SURVEYING CORPORATION
Houston Texas

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 4005

COUNTY LEA
FIELD or LOCATION EAST HIGHTOWER
WELL H.T.B. # 1
COMPANY SHELL OIL COMPANY

COMPANY SHELL OIL COMPANY
WELL H.T.B. # 1
FIELD EAST HIGHTOWER
COUNTY LEA STATE NEW MEXICO
LOCATION 700' FROM N/L
580' FROM W/L
Other Services:
LL, MLL
Sec. 31 Twp. 12S Rge. 34E

Permanent Datum: GL, Elev. 4215.5
Log Measured From DF, 12.5 Ft. Above Perm. Datum
Drilling Measured From DF
Elev.: K.B.
D.F. 4228
G.L. 4215.5

Date	12-27-65			WR
Run No.	ONE			
Depth—Driller	10364			
Depth—Logger	10365			
Btm. Log Interval	10357			
Top Log Interval	0			
Casing—Driller	9 5/8@ 4152	@	@	@
Casing—Logger	-			
Bit Size	8¾			
Type Fluid in Hole	SALT GEL			
Dens. | Visc.	9.6 | 40			
pH | Fluid Loss	6.5 | 10.2 ml	ml	ml	ml
Source of Sample	CIRC.			
R_m @ Meas. Temp.	.095 @ 75 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.08 @ 75 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	.12 @ 75 °F	@ °F	@ °F	@ °F
Source: R_{mf} | R_{mc}	M | M			
R_m @ BHT	.052 @ 149 °F	@ °F	@ °F	@ °F
Time Since Circ.	3 HOURS			
Max. Rec. Temp.	149 °F	°F	°F	°F
Equip. | Location	3722 | HOBBS			
Recorded By	WILSON			
Witnessed By	MR. COOK			

FOLD HERE

REMARKS

Changes in Mud Type or Additional Samples		
Date | Sample No.		
Depth—Driller		
Type Fluid in Hole		
Dens. | Visc.		
ph | Fluid Loss	ml	ml
Source of Sample		
R_m @ Meas. Temp.	@ °F	@ °F
R_{mf} @ Meas. Temp.	@ °F	@ °F
R_{mc} @ Meas. Temp.	@ °F	@ °F
Source: R_{mf} | R_{mc}		
R_m @ BHT	@ °F	@ °F
R_{mf} @ BHT	@ °F	@ °F
R_{mc} @ BHT	@ °F	@ °F

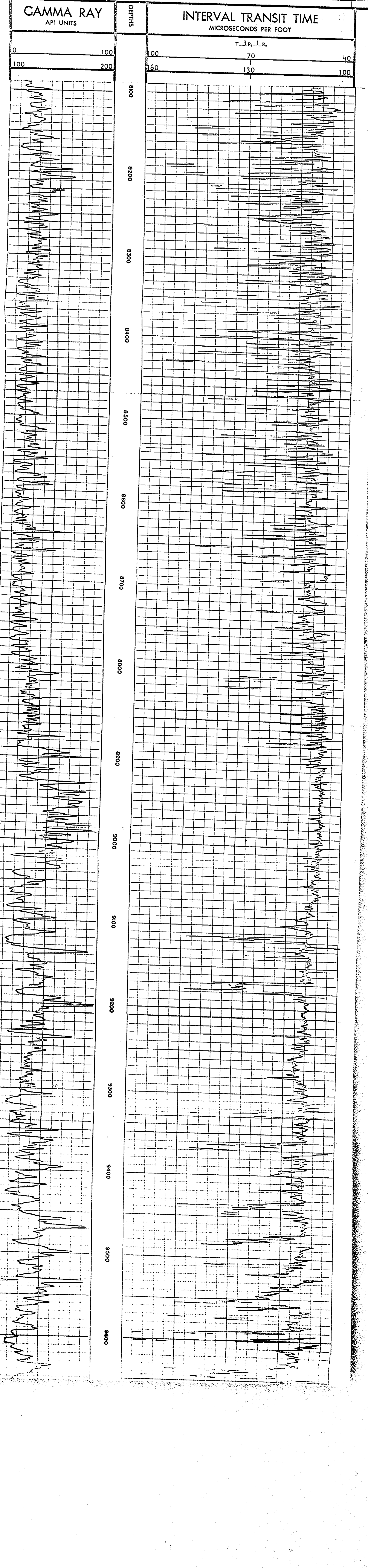
Scale Changes			
Type Log	Depth	Scale Up Hole	Scale Down Hole

Equipment Data				
Run No.	Tool Type	Pad Type	Tool Pos.	Other

C.D.: YES S.O.: SPRING & CALIPER
Equip. Used: CART. No. SLP-A-96
PANEL No. SLP-A-142
SONDE No. SLS-B-12

CALIBRATION:	BACKGND. CPS.	SOURCE CPS.	GALV. INCR. DIVISIONS	SENS. TAP (FOR CAL.)	SENS. TAP (RECORD)	TIME CONST.	RECORDING SPEED (FT./MIN.)
GAMMA RAY:	40	400	82.5	400	200	2/1	30/60

$$\text{Velocity (feet per second)} = \frac{1{,}000{,}000}{\text{Interval Transit Time (microseconds per foot)}}$$



N.M.O.C.C. MICROGRAPHICS
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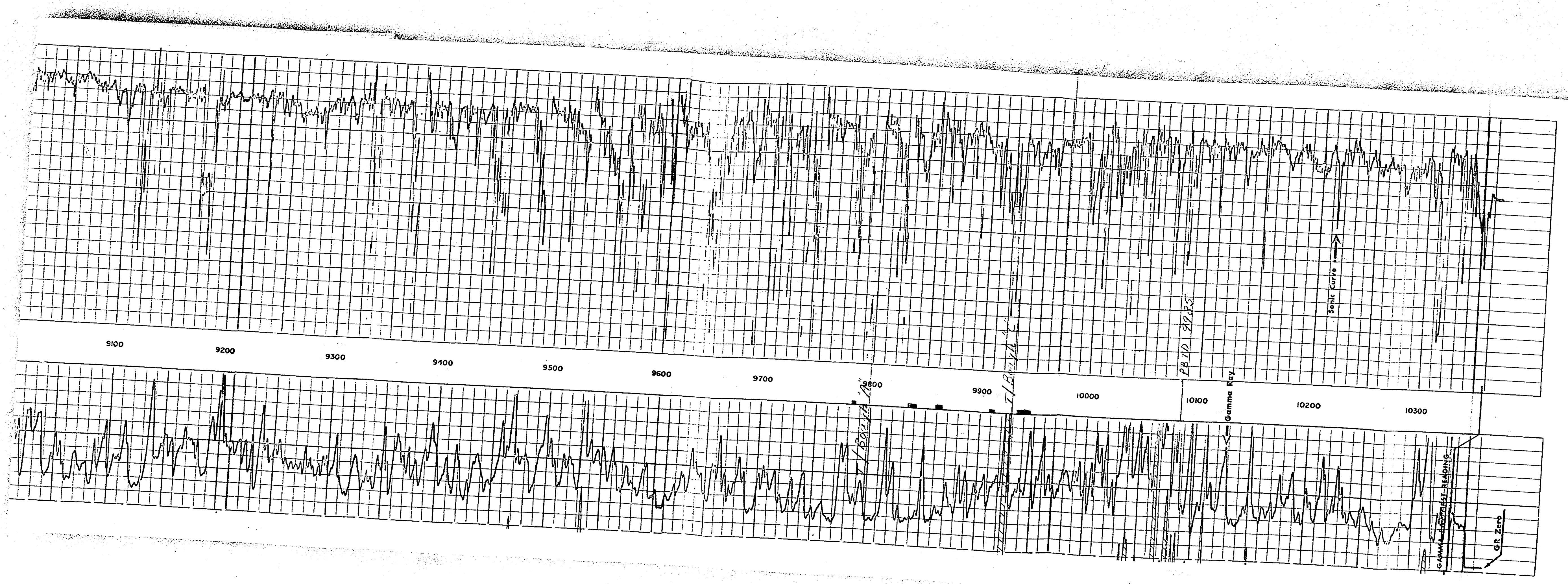


GAMMA RAY
API UNITS

0	100
100	200

DEPTHS

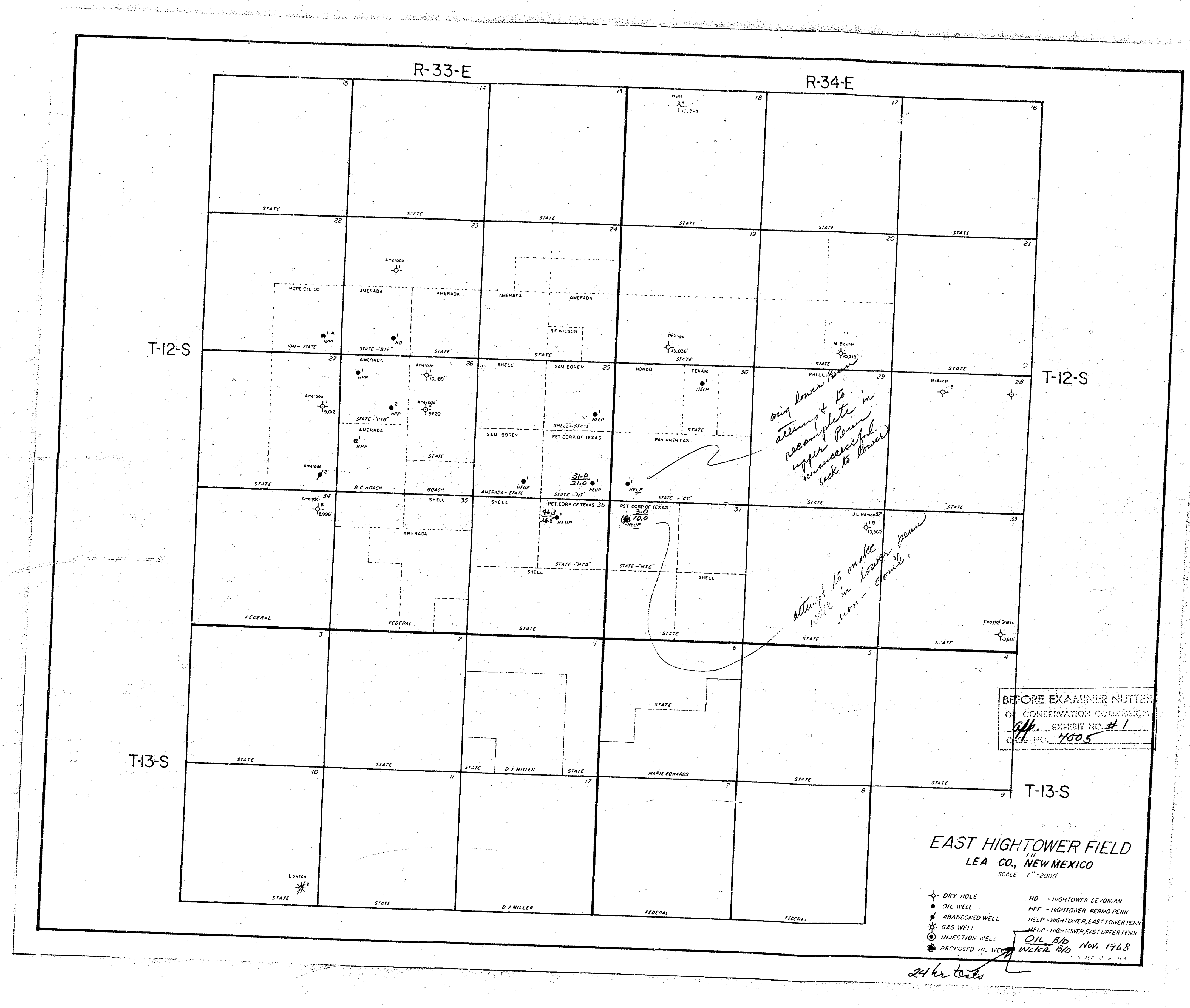
INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT

T 3 R 1 R

100	70	40
160	130	100

COMPANY SHELL OIL COMPANY
WELL H. T. B. # 1
FIELD EAST HIGHTOWER
COUNTY LEA STATE NEW MEXICO

SWSC FR 10357
SWSC TD 10365
DRLR TD 10364
Elev: KB
DF 4228
GL 4215.5



orig lower Penn
attempt to
recomplete in
upper Penn
unsuccessful
back to lower

attempt to make
well in lower Penn
non-comml.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
App. EXHIBIT NO. #1
CASE NO. 4005

EAST HIGHTOWER FIELD
IN
LEA CO., NEW MEXICO

SCALE 1" = 2000'

-◇- DRY HOLE
● OIL WELL
ABANDONED WELL
GAS WELL
◉ INJECTION WELL
PROPOSED INJ. WELL

HD - HIGHTOWER DEVONIAN
HPP - HIGHTOWER PERMO PENN
HELP - HIGHTOWER, EAST LOWER PENN
HEUP - HIGHTOWER, EAST UPPER PENN

OIL B/D
WATER B/D Nov. 1968

24 hr tests

SCHLUMBERGER

BOREHOLE COMPENSATED SONIC LOG GAMMA RAY

COUNTY LEA
FIELD or LOCATION UNDESIGNATED
WELL STATE "BH" #1
COMPANY ATLANTIC RICHFIELD

COMPANY ATLANTIC RICHFIELD COMPANY
WELL STATE "BH" #1
FIELD UNDESIGNATED
COUNTY LEA STATE NEW MEXICO
LOCATION 660'FNL & FWL
Sec. 13 Twp. 19-S Rge. 34-E
Other Services: DIL

Permanent Datum: G.L., Elev. 3957
Log Measured From K.B., 11 Ft. Above Perm. Datum
Drilling Measured From K.B.
Elev.: K.B. 3968
D.F. 3966
G.L. 3957

Date	7-26-67			
Run No.	ONE			
Depth—Driller	5395			
Depth—Logger	5397			
Btm. Log Interval	5388			
Top Log Interval	0			
Casing—Driller	8 5/8@ 427	@	@	@
Casing—Logger				
Bit Size	7 7/8			
Type Fluid in Hole	STARCH PRESERVATIVES			
Dens. | Visc.	10.1 | 46			
pH | Fluid Loss	6 | 8 ml	ml	ml	ml
Source of Sample	PIT			
R_m @ Meas. Temp.	.057 @ 85 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.047 @ 79 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	@ °F	@ °F	@ °F	@ °F
Source: R_{mf} | R_{mc}	M			
R_m @ BHT	.047 @ 115 °F	@ °F	@ °F	@ °F
Time Since Circ.	3 HOURS			
Max. Rec. Temp.	115 °F	°F	°F	°F
Equip. | Location	3722 | HOBBS			

The well name, location and borehole reference data were furnished by the customer.

REMARKS

Changes in Mud Type or Additional Samples

Date	Sample No.	Depth—Driller	Type Fluid in Hole	Dens.	Visc.	pH	Fluid Loss	Source of Sample	R_m @ Meas. Temp.	R_{mf} @ Meas. Temp.	R_{mc} @ Meas. Temp.	Source: R_{mf} R_{mc}	R_m @ BHT	R_{mf} @ BHT	R_{mc} @ BHT
							ml		@ °F	@ °F	@ °F		@ °F	@ °F	@ °F
							ml		@ °F	@ °F	@ °F		@ °F	@ °F	@ °F

Scale Changes

Type Log	Depth	Scale Up Hole	Scale Down Hole

Equipment Data

Run No.	Tool Type	Pad Type	Tool Pos.	Other

B.D. USED S.O.: SPRING GUIDE & CALIPER
Equip. Used: CART. No. SLH-A-45
PANEL No. SLP-C-251
SONDE No. SLS-B-11

CALIBRATION:	BACKGND. CPS.	SOURCE CPS.	GALV. INCR. DIVISIONS	SENS. TAP (FOR CAL.)	SENS. TAP (RECORD)	TIME CONST.	RECORDING SPEED (FT./MIN.)
GAMMA RAY:	64	464	82.5	800	400	1	40/80

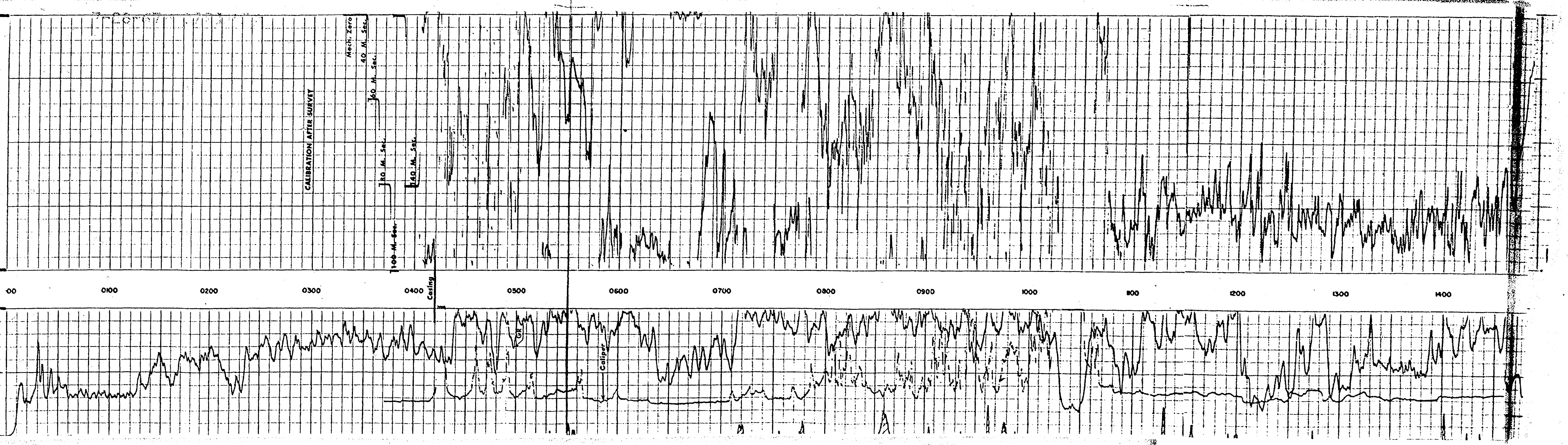
Velocity (feet per second) = 1,000,000 / Interval Transit Time (microseconds per foot)

INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT
T 3 R1 1 R2
40 70 100
100 130 160

DEPTHS

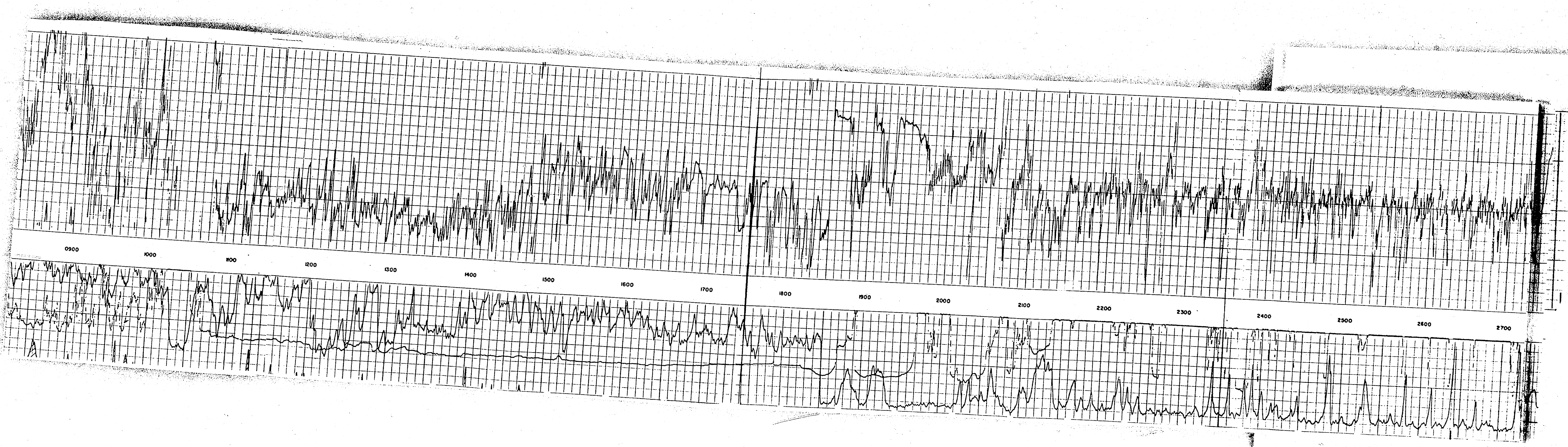
GAMMA RAY
API UNITS
0 100
100 200

CALIPER
HOLE DIAM. IN INCHES
RECORDED 7 SHALLOW 16



ATLANTIC RICHFIELD COMPANY
LOG OF STATE "BH" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.



ATLANTIC RICHFIELD COMPANY
LOG OF STATE "BH" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.

RAPHICS

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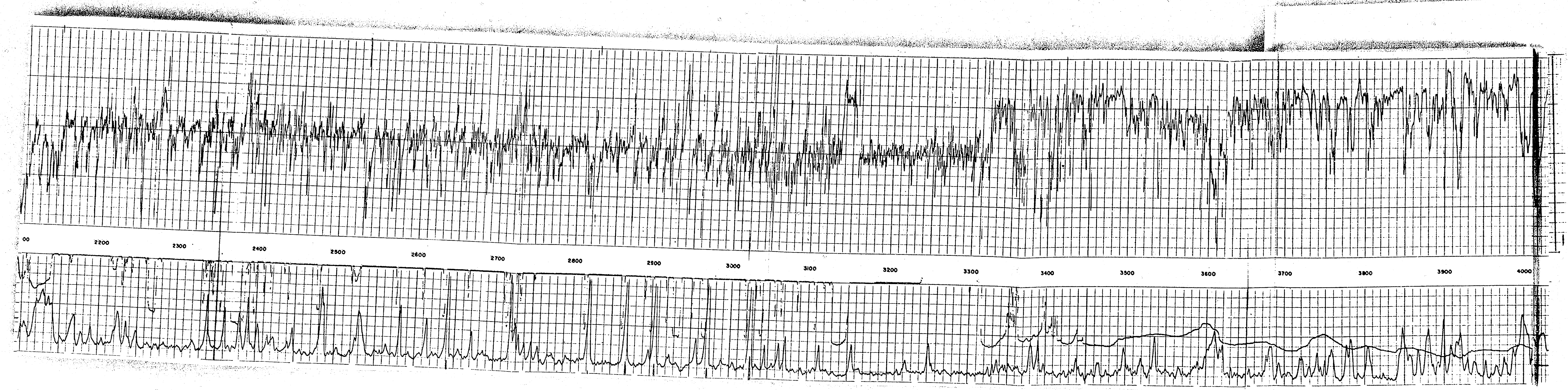

ATLANTIC RICHFIELD COMPANY
LOG OF STATE "BH" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.

GRAPHICS

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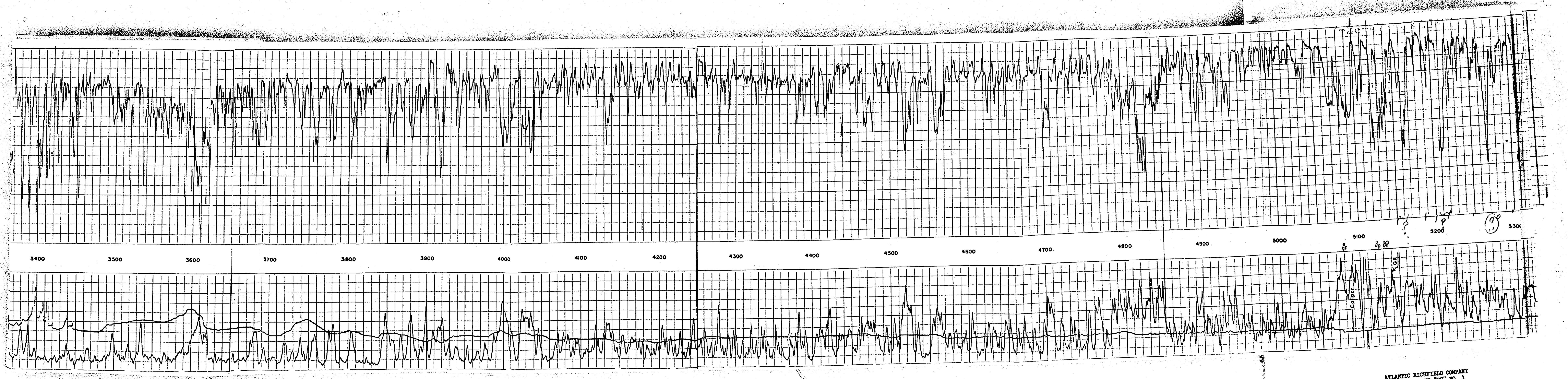
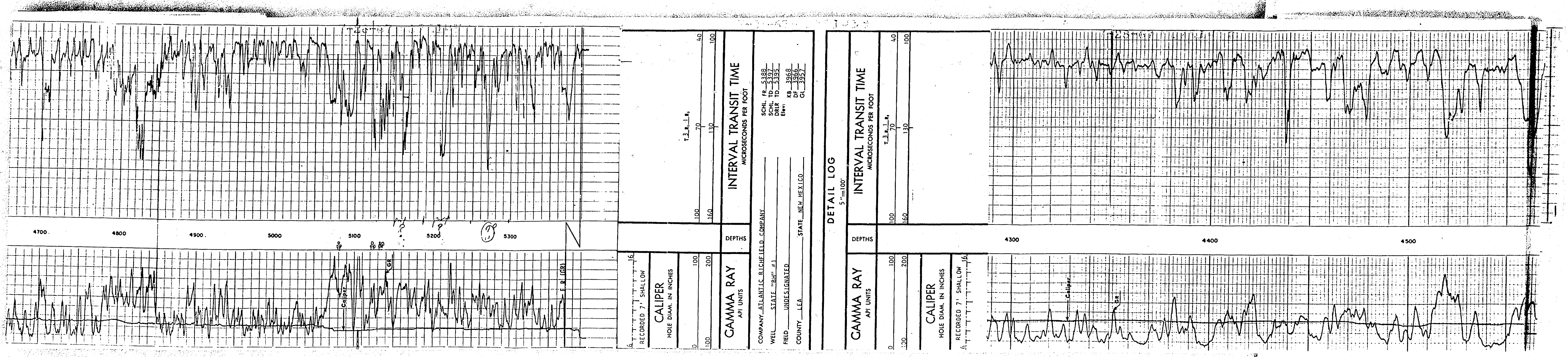


ATLANTIC RICHFIELD COMPANY
LOG OF STATE "BH" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.

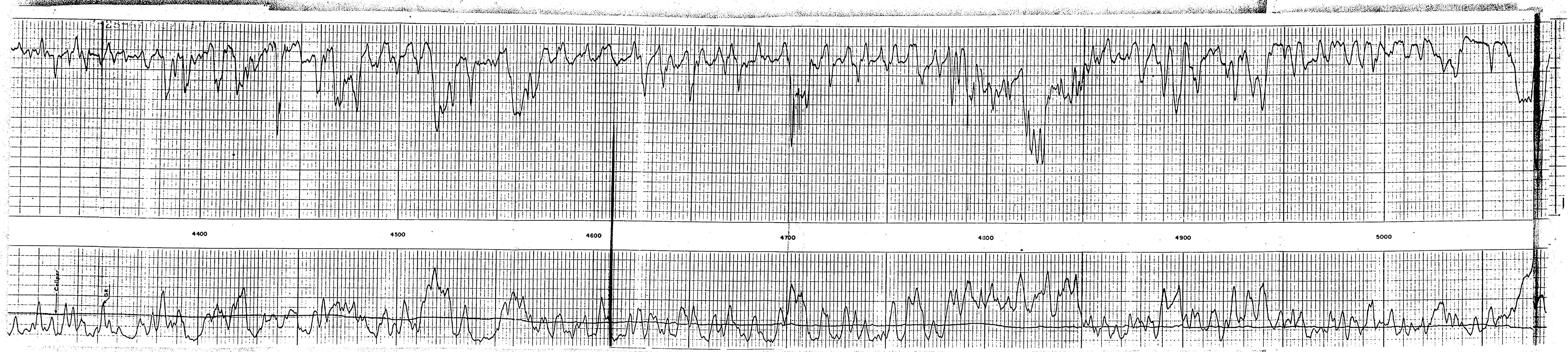


COMPANY ATLANTIC RICHFIELD COMPANY
WELL STATE "BH" #1
FIELD UNDESIGNATED
COUNTY LEA STATE NEW MEXICO

SCHL. FR 5388
SCHL TD 5397
DRLR TD 5395
Elev: KB 3968
DF 3966
GL 3957

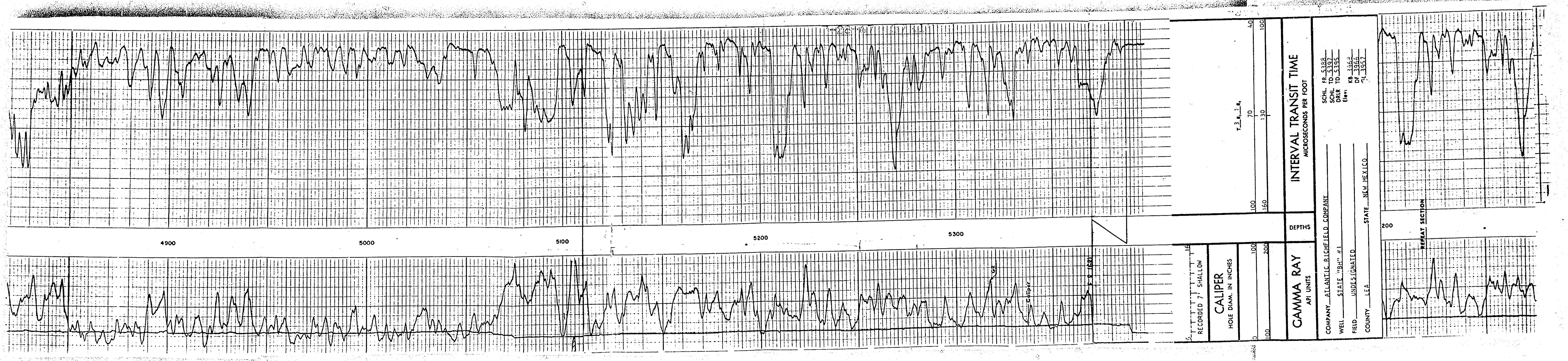
ATLANTIC RICHFIELD COMPANY
LOG OF STATE "BH" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.



ATLANTIC RICHFIELD COMPANY
LOG OF STATE "EE" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.



ATLANTIC RICHFIELD COMPANY
LOG OF STATE "BH" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.

N.M.R.C.F. MICROGRAPHICS

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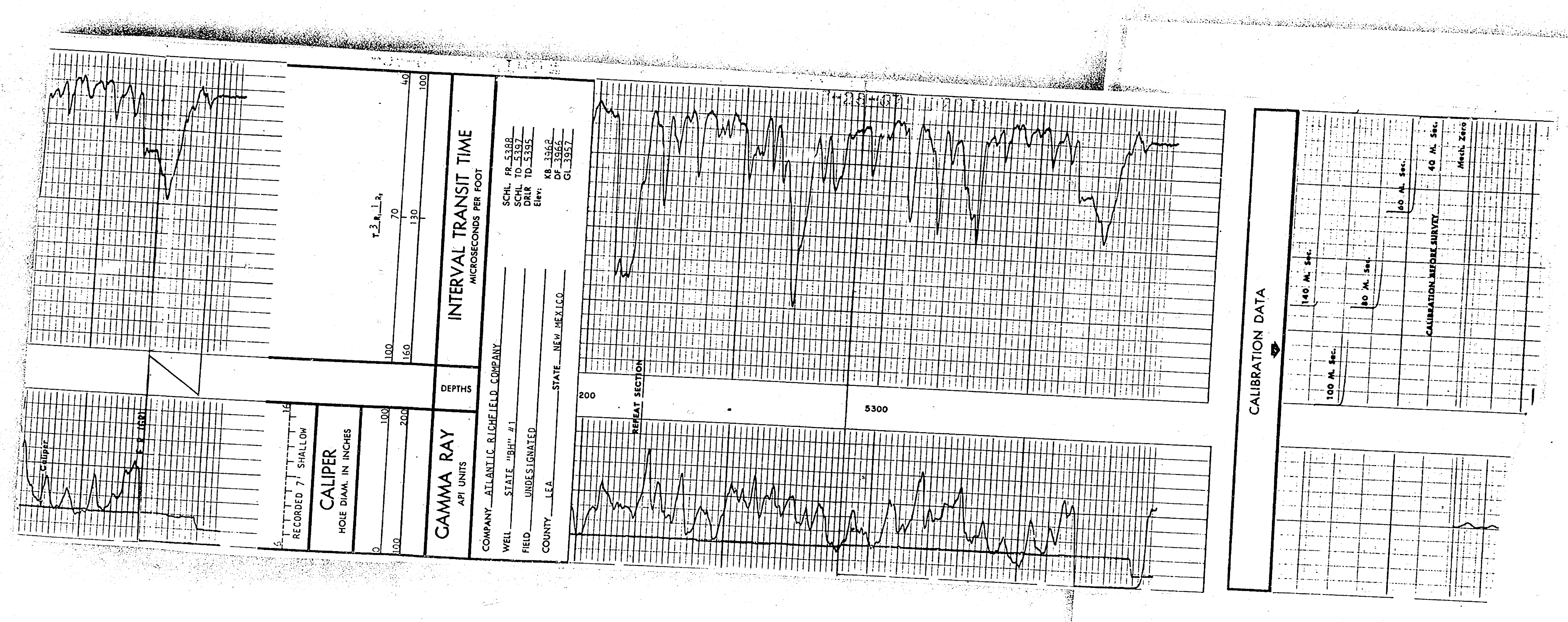


COMPANY ATLANTIC RICHFIELD COMPANY

WELL STATE "BH" #1

FIELD UNDESIGNATED

COUNTY LEA STATE NEW MEXICO

SCHL. FR. 5388

SCHL. TD 5397

DRLR TD 5395

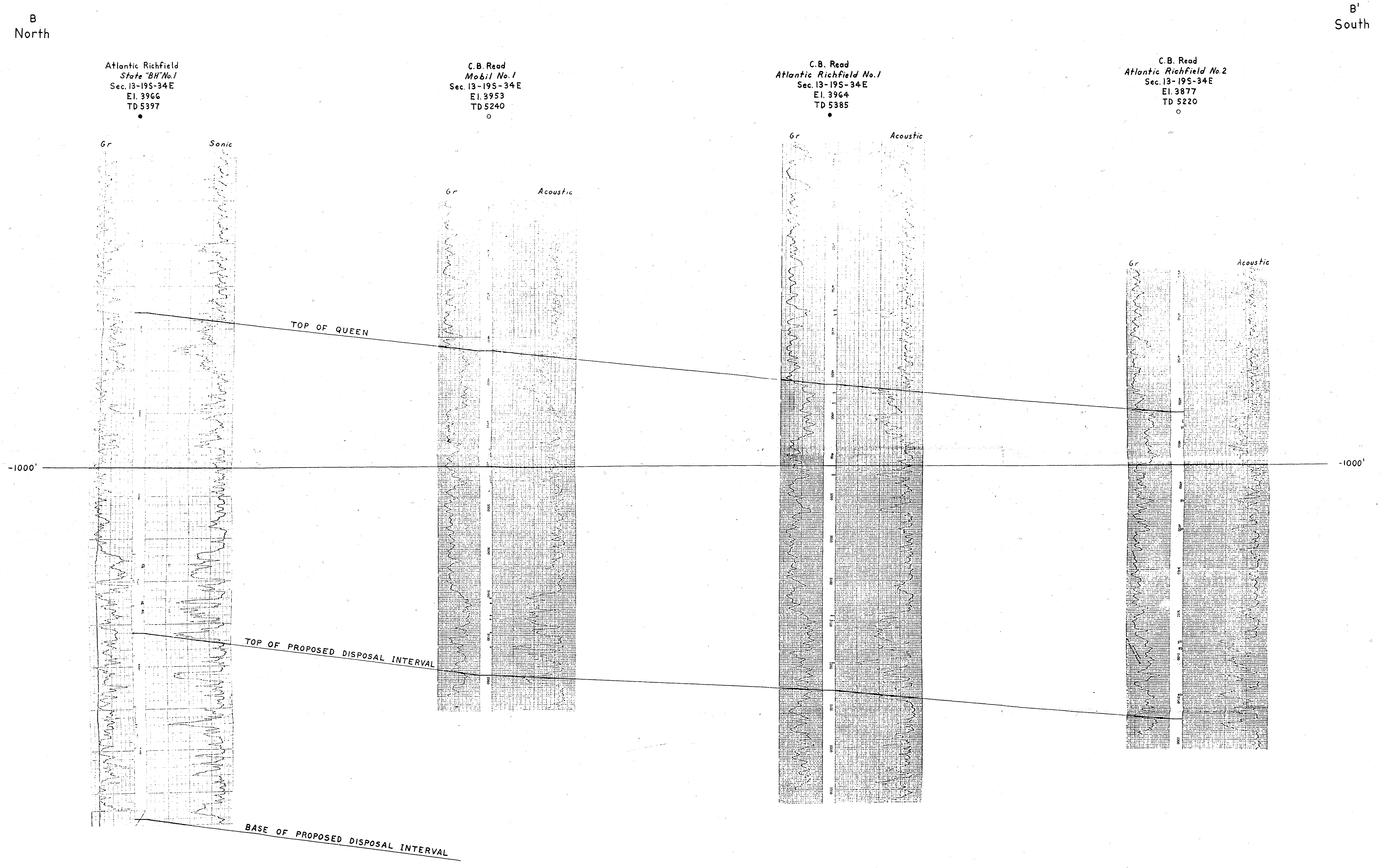
Elev: KB 3962

DF 3966

GL 3957

ATLANTIC RICHFIELD COMPANY
LOG OF STATE "BH" NO. 1
QUAIL QUEEN POOL
LEA COUNTY, NEW MEXICO

EXHIBIT NO.



ATLANTIC RICHFIELD COMPANY
NORTH-SOUTH CROSS SECTION
B - B'
AREA OF STATE "BH" NO. 1
LEA COUNTY, NEW MEXICO
DATE: 12-10-68

EXHIBIT NO. 3

N.N.M.C.P. MICROGRAPHICS

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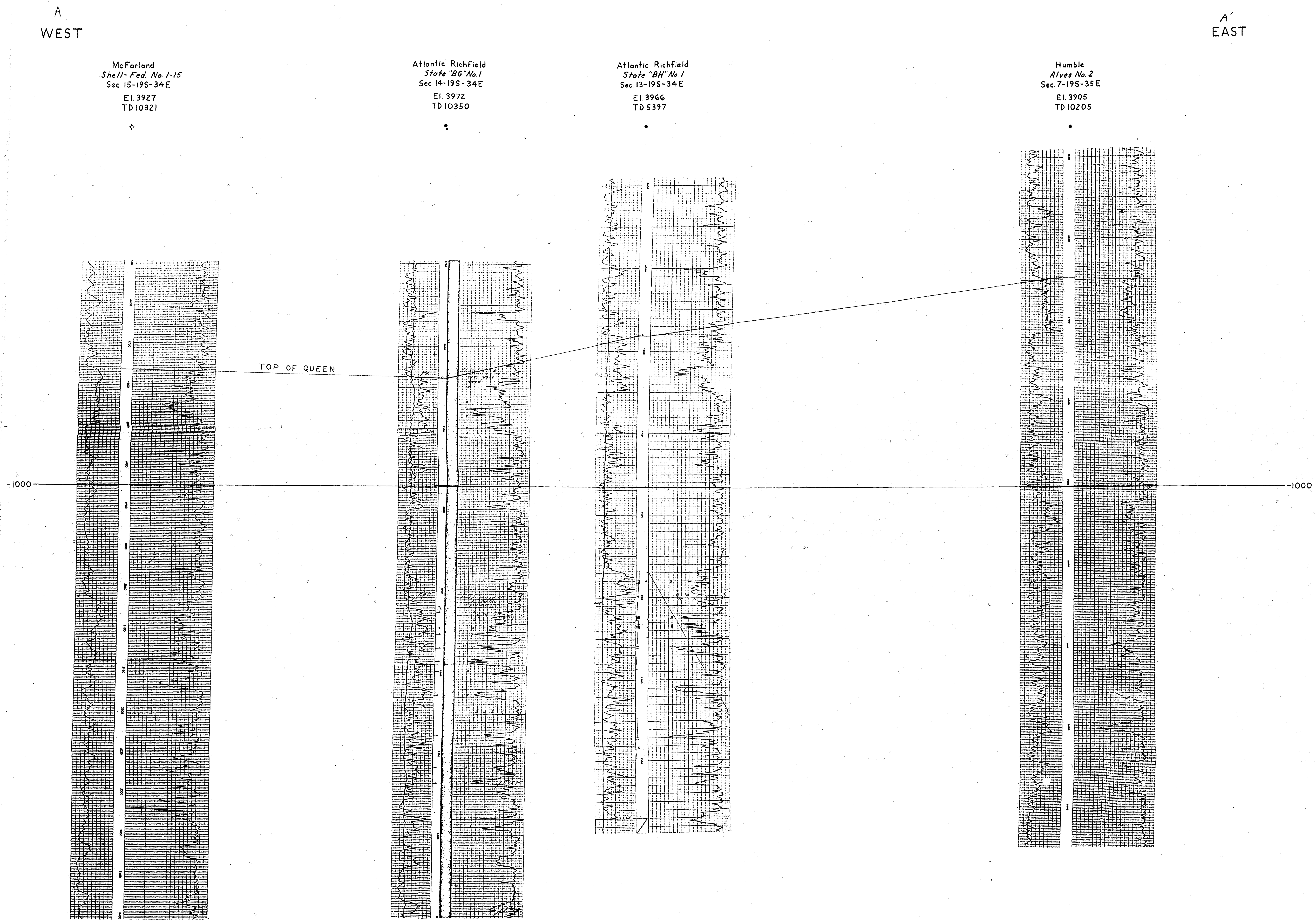

ATLANTIC RICHFIELD COMPANY
EAST-WEST CROSS SECTION
AREA OF STATE "BH" NO. 1
LEA COUNTY, NEW MEXICO
Horizontal Scale: 1" = 1000'
Date: 2-19-68

EXHIBIT NO. 2

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
ARCO EXHIBIT NO. 2
CASE NO. 4004

N.M.O.C.F. MICROGRAPHICS
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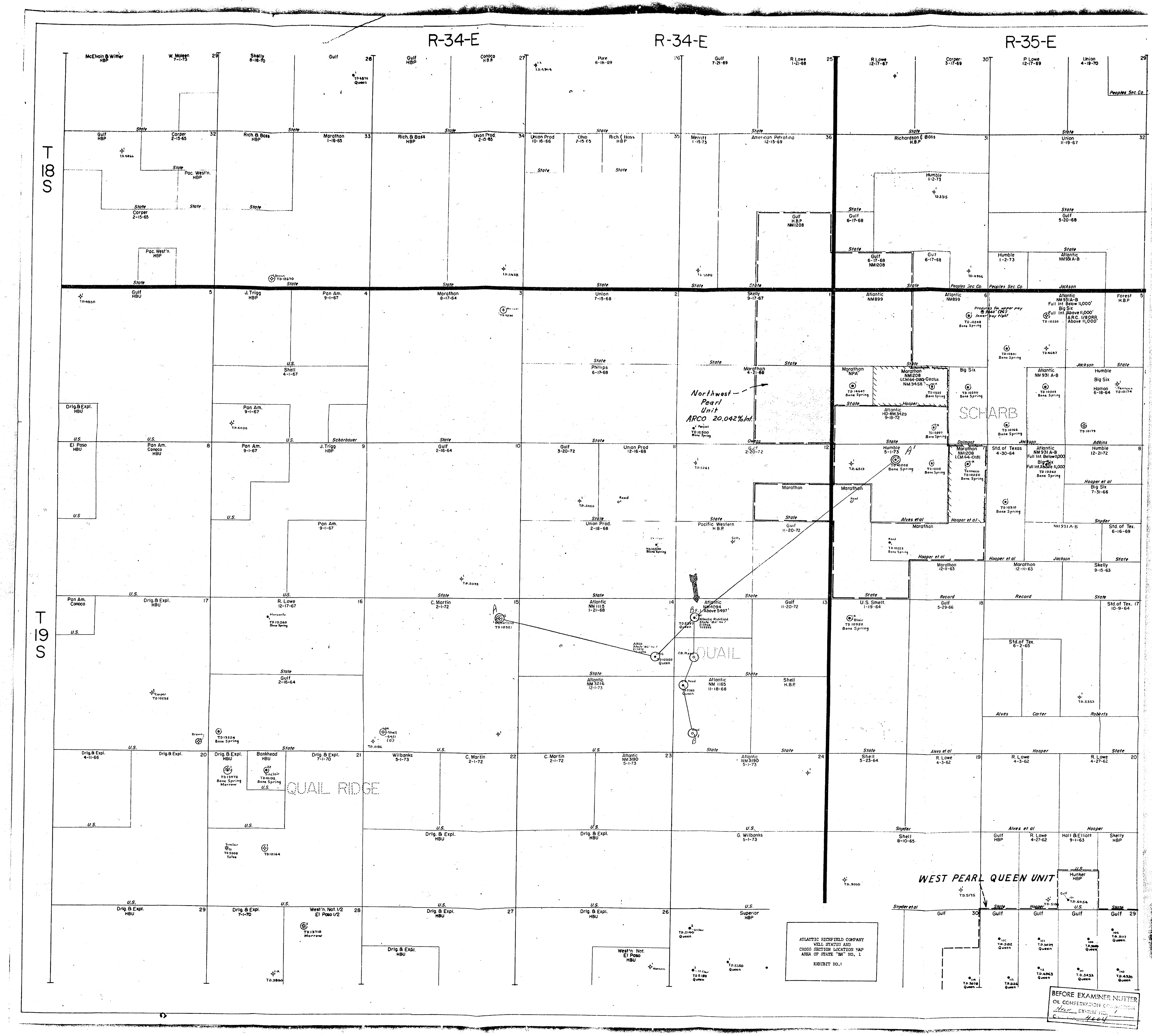

ATLANTIC RICHFIELD COMPANY
WELL STATUS AND
CROSS SECTION LOCATION MAP
AREA OF STATE "BH" NO. 1

EXHIBIT NO. 1

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Arco EXHIBIT NO. 1
CASE NO. 4004

N.M.O.C.C. MICROGRAPHICS
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