Case No.
5564

Large Exhibits

W.N.M.C.F. MICROGRAPHICS

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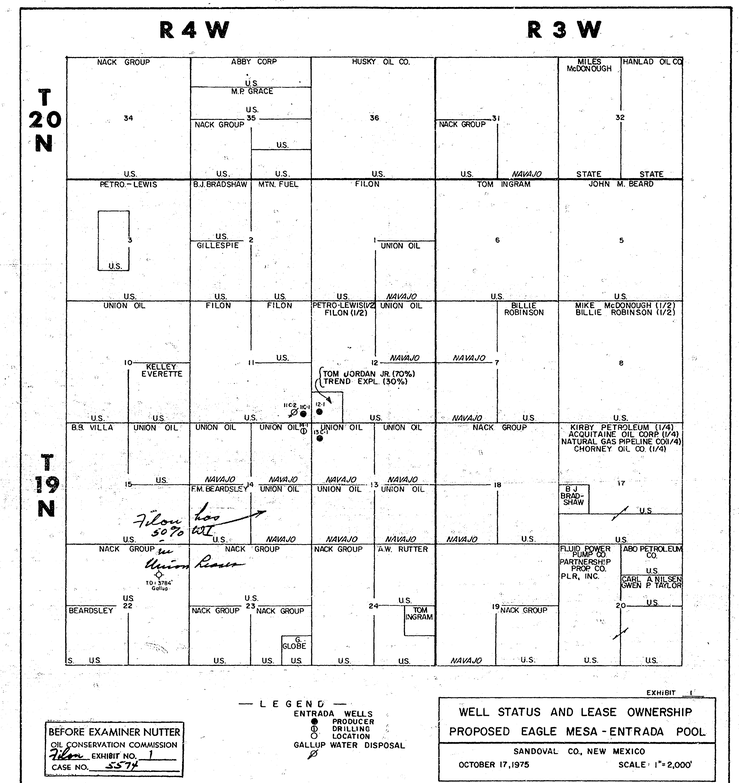

W.N.M.C.F. MICROGRAPHICS
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R 31 E

R 32 E

eddy county
lea county

STRAWN 11200
MORROW 11750

T 19 S

T 20 S

LEGEND

SURFACE FACILITIES

- LLANO, INC. GAS PIPELINE
- HIGH PRESSURE GAS INJECTION LINE
- GAS COMPRESSOR STATION
- PHILLIPS LUSK GASOLINE PLANT
- RESIDUE GAS
- 11,573 TOTAL DRILLING DEPTH
- ZERO ISOPACHOUS LINE

WELL STATUS SYMBOLS

- STRAWN PRODUCING WELL
- STRAWN SHUT-IN WELL
- STRAWN PLUGGED & ABAND. WELL
- STRAWN DRY HOLE
- JUNKED HOLE
- DRILLING WELL
- MORROW GAS WELL
- PROPOSED INITIAL GAS INJECTOR
- POSSIBLE FUTURE GAS INJECTOR

LLANO, INC.

LUSK STRAWN DEEP UNIT
PRESSURE MAINTENANCE PROJECT
LEA AND EDDY COUNTIES, NEW MEXICO

STRAWN AND MORROW WELL PLAT

SCALE IN FEET
0' 2000' 4000'

DRAWN	9-75	REVISED	
REVISED		REVISED	

Ex. No. 3

N.M.O.C.C. MICROGRAPHICS
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R 31 E

R 32 E

T 19 S

T 20 S

eddy county

lea county

BIG EDDY UNIT

(LLANO - BY BASDEN PROTECTION AGREEMENT)

LUSK DEEP UNIT

PLAINS UNIT

LEGEND

(1)	TRACT NUMBER
	FEDERAL LANDS – 18,561.60 ACRES OR 89.061%
	STATE LANDS – 2,282.28 ACRES OR 10.939%
	UNIT AREA – 20,863.88 ACRES OR 100.000%
AMOCO	LESSEE OF RECORD
(LLANO)	STRAWN OPERATING RIGHTS

LLANO, INC.

LUSK STRAWN DEEP UNIT
PRESSURE MAINTENANCE PROJECT
LEA AND EDDY COUNTIES, NEW MEXICO

TRACT PLAT

SCALE IN FEET
0' 2000' 4000'

DRAWN	10-75	REVISED	
REVISED		REVISED	

Ex. No. 1

W.N.M.C.F. MICROGRAPHICS
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R 31 E

R 32 E

eddy county

lea county

T 19 S

T 20 S

YATES	2550
DELAWARE	4700
BONE SPRINGS	7200
WOLFCAMP	10300
STRAWN	11200
MORROW	11750

LEGEND

PRODUCING FORMATIONS

- YATES
- 7-RIVERS
- QUEEN
- DELAWARE
- BONE SPRINGS
- WOLFCAMP
- PENN GAS
- STRAWN
- MORROW GAS

WELL STATUS SYMBOLS

- PRODUCING WELL
- SHUT-IN WELL
- PLUGGED AND ABANDONED WELL
- DRY HOLE
- JUNKED HOLE
- DRILLING WELL
- INJECTION WELL
- 11,573 TOTAL DRILLING DEPTH

LLANO, INC.

LUSK STRAWN DEEP UNIT
PRESSURE MAINTENANCE PROJECT
LEA AND EDDY COUNTIES, NEW MEXICO

GENERAL WELL PLAT

SCALE IN FEET
0' 2000' 4000'

DRAWN	9-75	REVISED	
REVISED		REVISED	

Ex. No. 2

N.M.O.C.D. MICROGRAPHICS
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R-31-E

R-32-E

T 18 S

T 19 S

EDDY COUNTY

LEA COUNTY

LUSK DEEP UNIT

TREND DRILLING COMPLETED OPERATED

→ LEGEND ←

PROPOSED UNIT OUTLINE

G/W CONTACT BASE OF STRAWN POROSITY

STRAWN PRODUCER AS OF 8-1-75

STRAWN DEEP WELL

Ex. No. 4

LLANO, INC.

LUSK STRAWN DEEP UNIT
PRESSURE MAINTENANCE PROJECT
EDDY & LEA COUNTIES, NEW MEXICO

NET PAY ISOPACHOUS
STRAWN POROSITY PLAT

C.I. = 10'

SCALE IN FEET

0 1000 2000 3000 4000 5000

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W.R.M.C.F. MICROGRAPHICS

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W.N.M.C.F. MICROGRAPHICS

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SCHLUMBERGER

SONIC LOG - GAMMA RAY

with CALIPER

SCHLUMBERGER WELL SURVEYING CORPORATION
Houston, Texas

COMPANY TENNECO OIL COMPANY

WELL 650 CONTINENTAL "A"

FIELD LUSK STRAWN

COUNTY LEA STATE NEW MEXICO

LOCATION 660' FSL & 1980' FEL

Other Services: FIL-PML-FT

Sec. 6 Twp. 19-S Rge. 32-E

Permanent Datum: GROUND LEVEL Elev. 3654.5

Log Measured From K.B. 18.1 Ft. Above Perm. Datum

Drilling Measured From K.B.

Elev.: K.B. 3672.6, D.F. 3671, G.L. 3654.5

Date	7-3-64		
Run No.	ONE		
Depth—Driller	11370		
Depth—Logger	11372		
Btm. Log Interval	11363		
Top Log Interval	18		
Casing—Driller	8-5/8@3802	@	@
Casing—Logger	3802		
Bit Size	7-7/8"		
Type Fluid in Hole	CHEM. GEL		
Dens. | Visc.	9.6 39		
pH | Fluid Loss	10.5 | 12.2ml	ml	ml
Source of Sample	CIRCULATED		
R_m @ Meas. Temp	.85 @ 90 °F	@ °F	@ °F
R_{mf} @ Meas. Temp	.725@ 91 °F	@ °F	@ °F
R_{mc} @ Meas. Temp	1.2 @ 91 °F	@ °F	@ °F
Source R_{mf} R_{mc}	M M		
R_m @ BHT	.52 @ 148°F	@ °F	@ °F
Time Since Circ.	4 HRS.		
Max. Rec. Temp.	158 °F	°F	°F
Equip. | Location	2526 | ART.		
Recorded By	VANN		
Witnessed By	FATUN-DESADIER-LOLLINS		

REMARKS BORE HOLE COMPENSATED TOOL

Scale Changes: Depth — Scale Up Hole — Scale Down Hole

Type Log — Depth — Scale Up Hole — Scale Down Hole

Charges in Mud Type or Additional Sample

Date — Run No. — Depth—Driller — Depth—Logger — 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

Time Since Circ. — Max. Rec. Temp. — Equip. | Location — Recorded By — Witnessed By

Equipment Data: Run No. — Tool Type — Pad Type — Tool No. — Other

Equip. Used CART. No. SLC-148, SONDE No. SLC-45, CART. No. SLC-45, SONDE No. SLC-148

RUN NO. ONE — 8 1/2" TO 3802 — 7 7/8" TO 11372

CALIBRATION	RECORDED	SOURCE	
CPS	55	CPS	400
GAMMA RAY		DIVISIONS	85.5

SENS. SAP (FOR CAL.) 800 — SENS. SAP (RECORD) 500 — Time CONST. 1/1 — RECORDING SPEED (FT./MIN.) 5 & 10

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

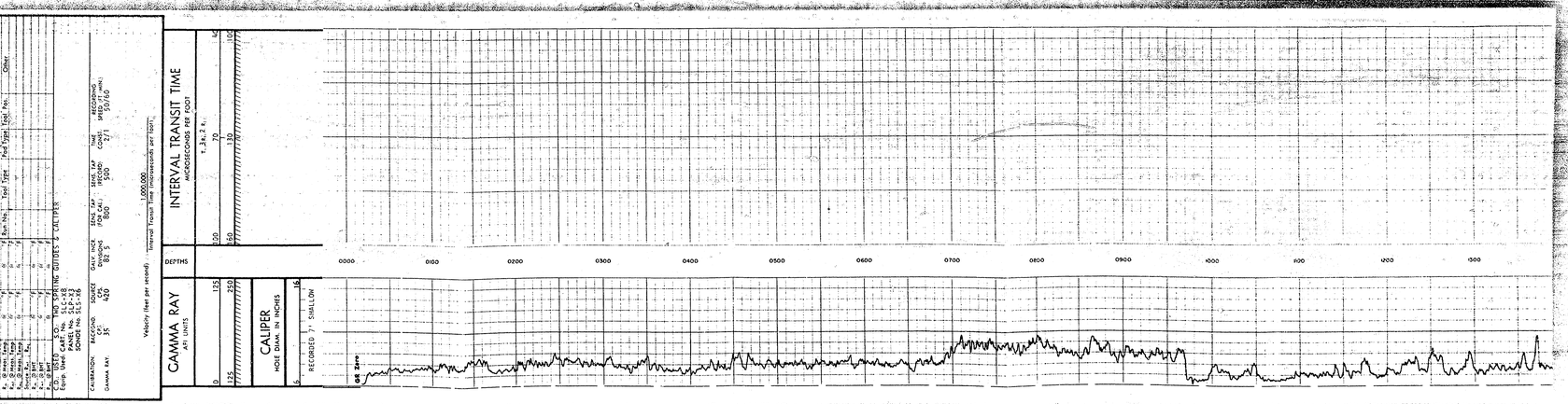
DEPTHS

GAMMA RAY (API UNITS): 0 — 125 — 250

CALIPER (HOLE DIAMETER IN INCHES): 6 — 16 — RECORDED 7" SHALLOW

INTERVAL TRANSIT TIME (MICROSECONDS PER FOOT): 150 — 130 — 110 — 90 — T-3M.2 R.

0000 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 100 1200 1300



W.N.M.C.F. MICROGRAPHICS

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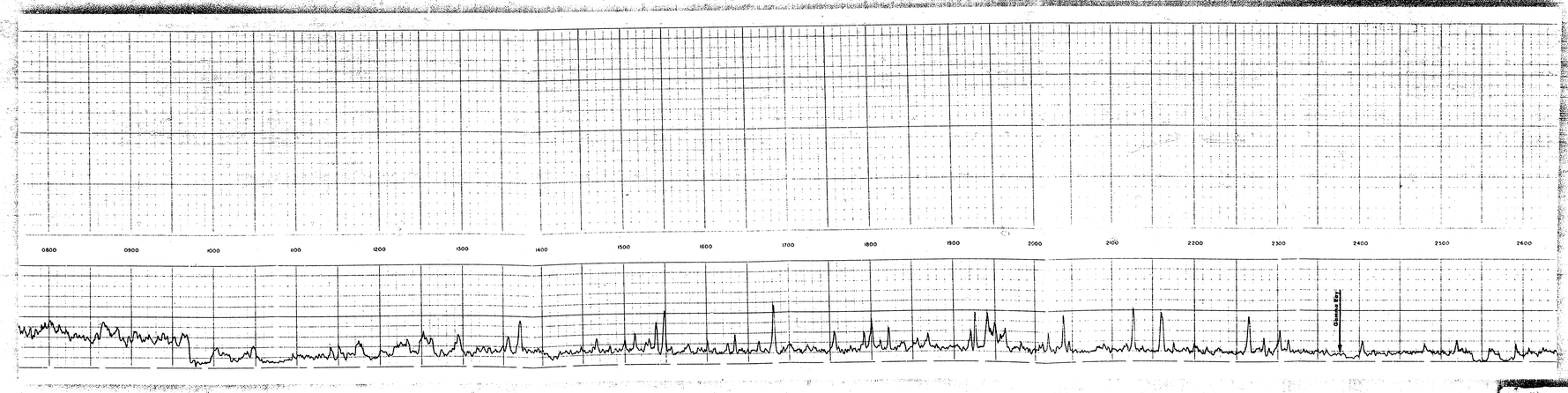

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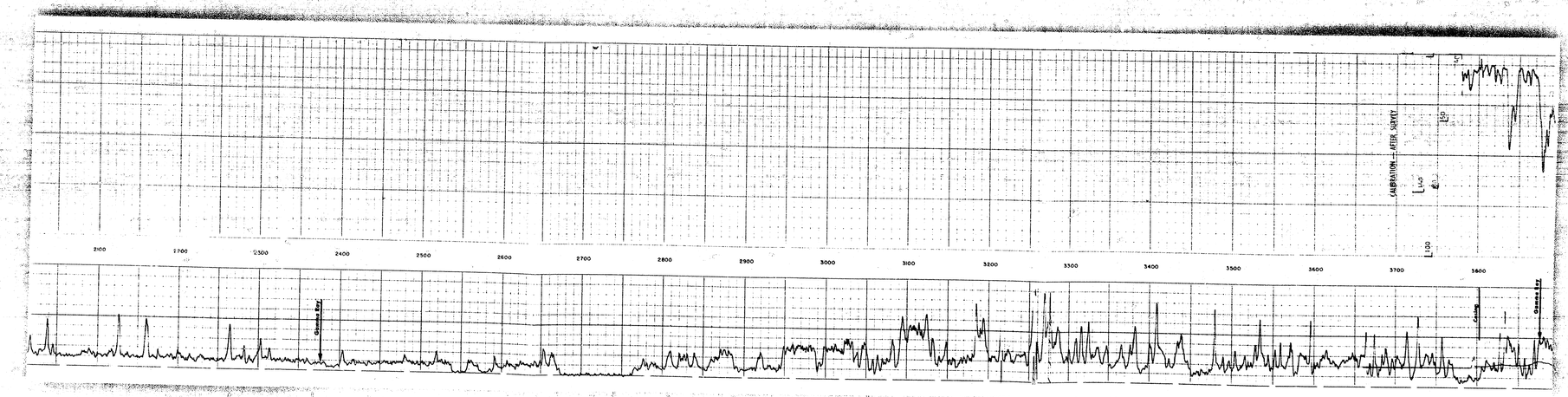

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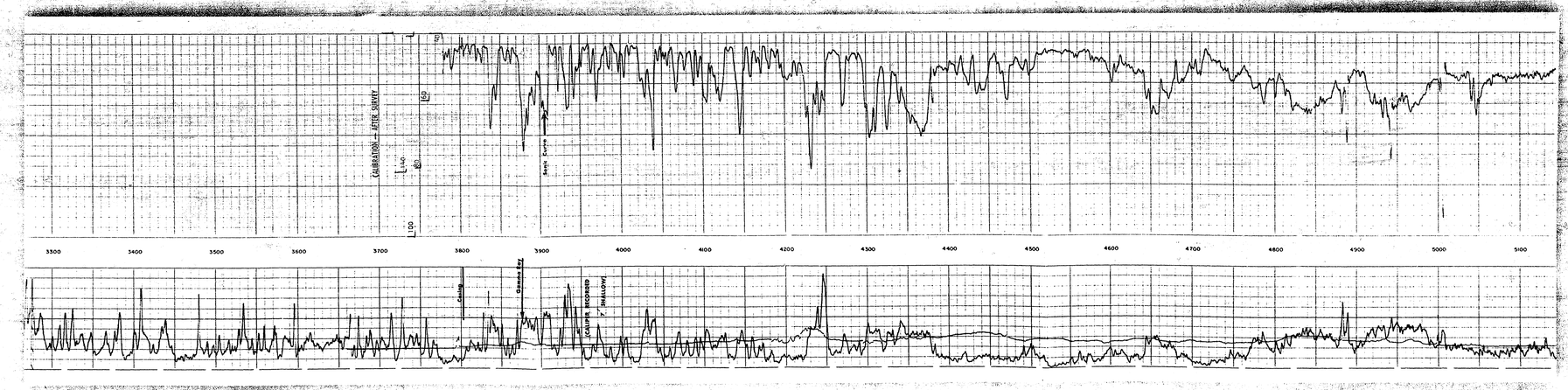

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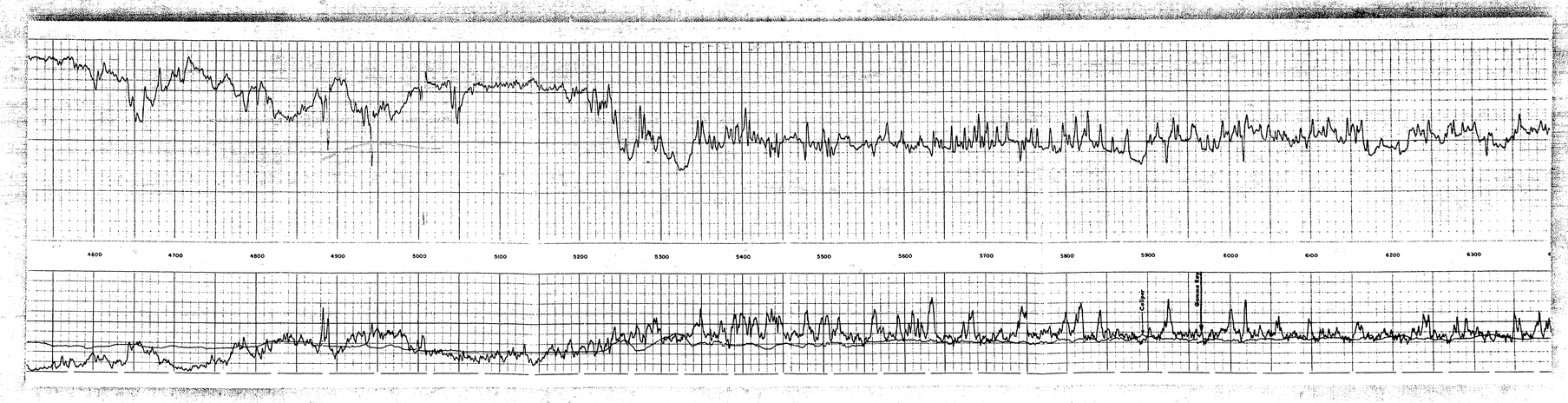

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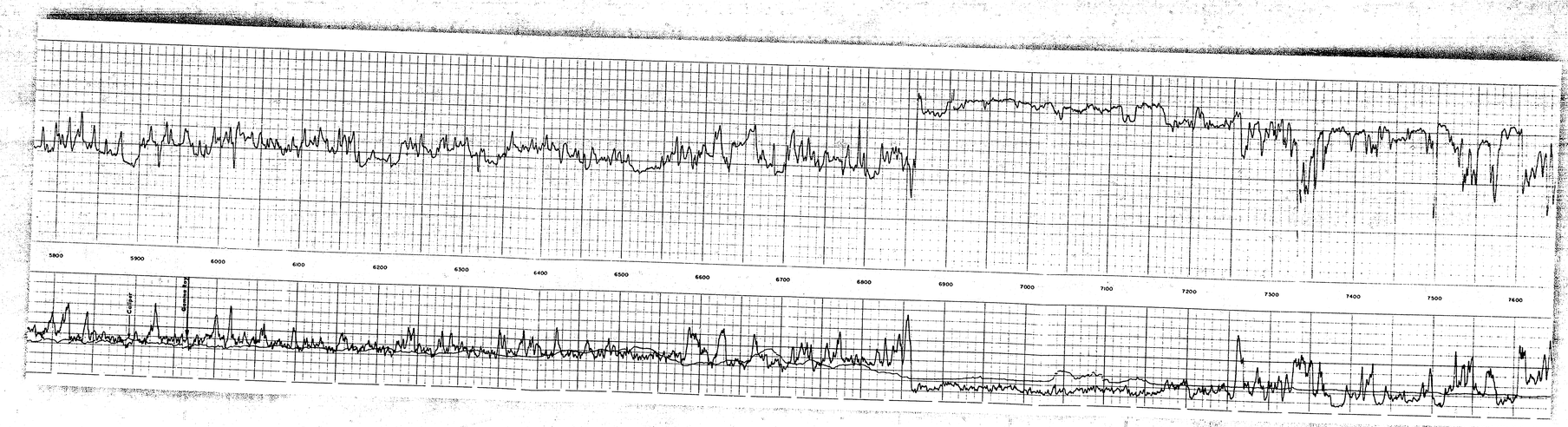

V.K.N.C.F. MICROGRAPHICS
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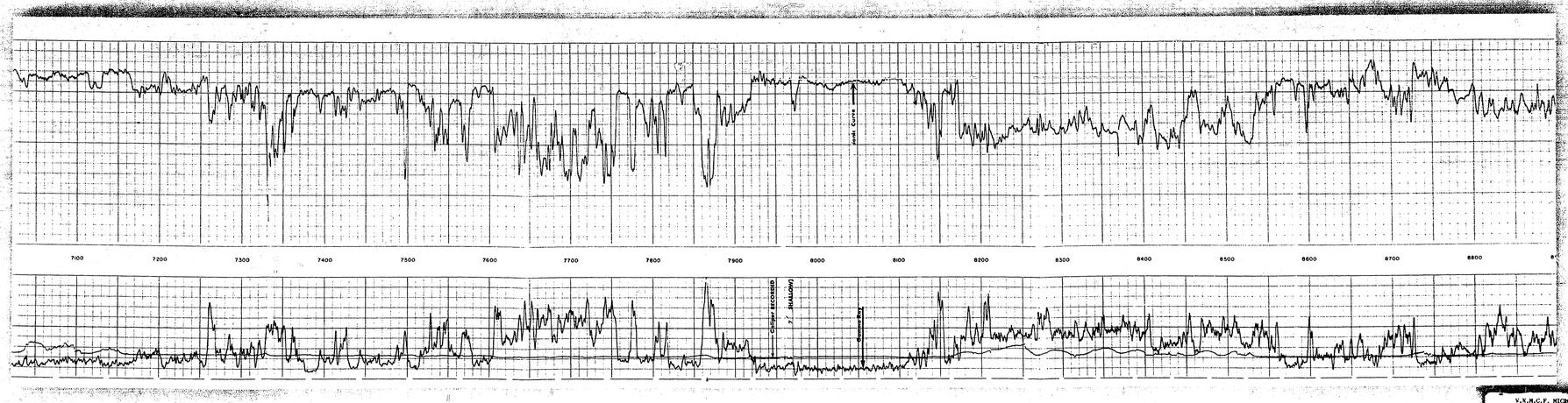

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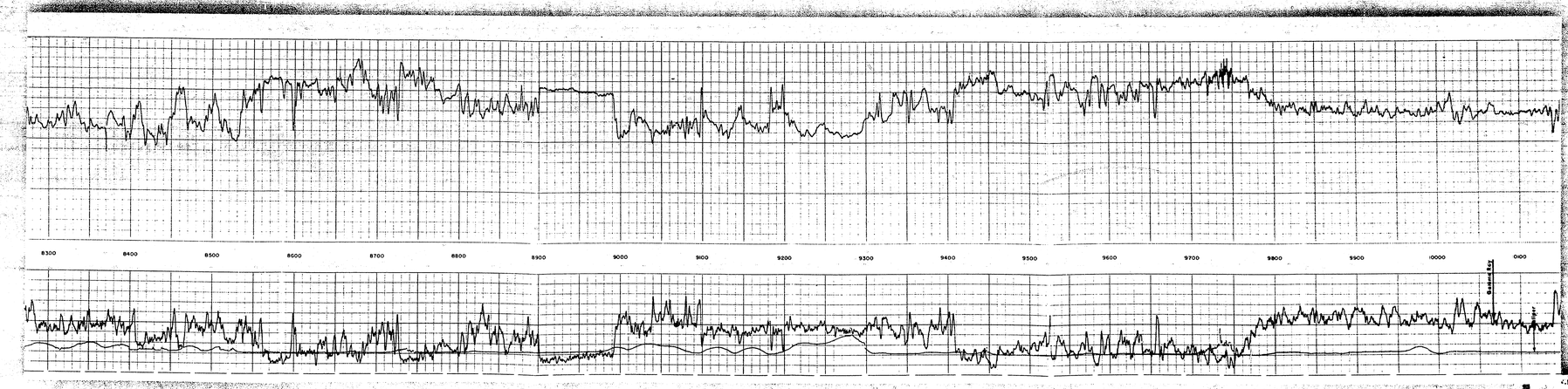

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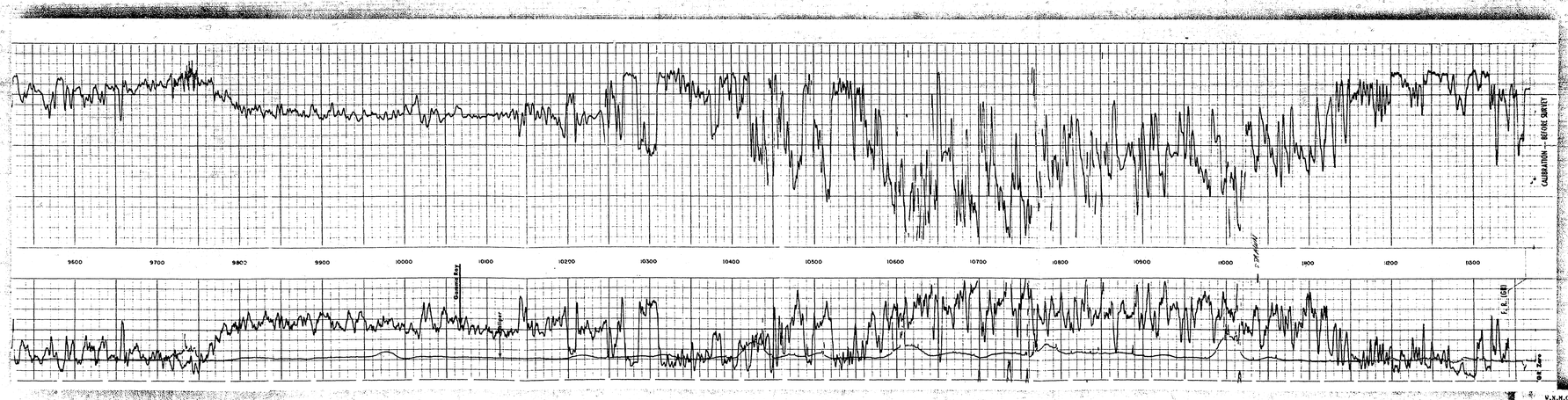

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V.V.N.C.F. MICROGRAPHICS

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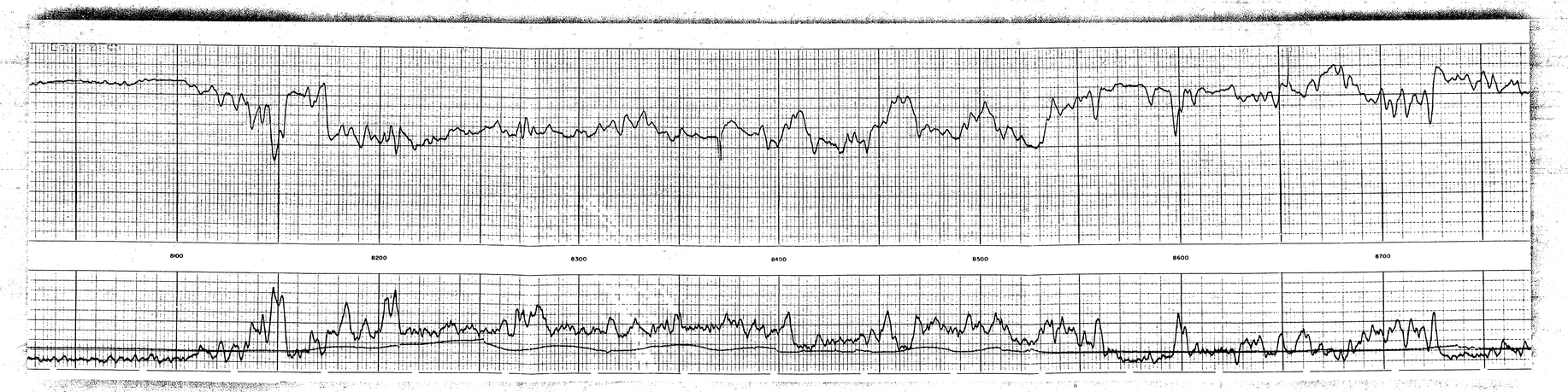

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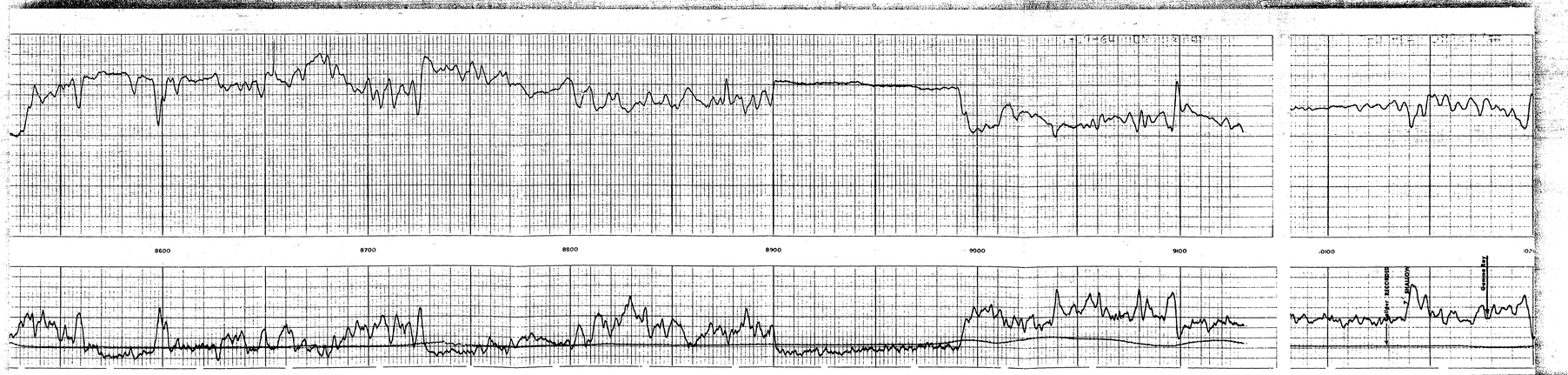

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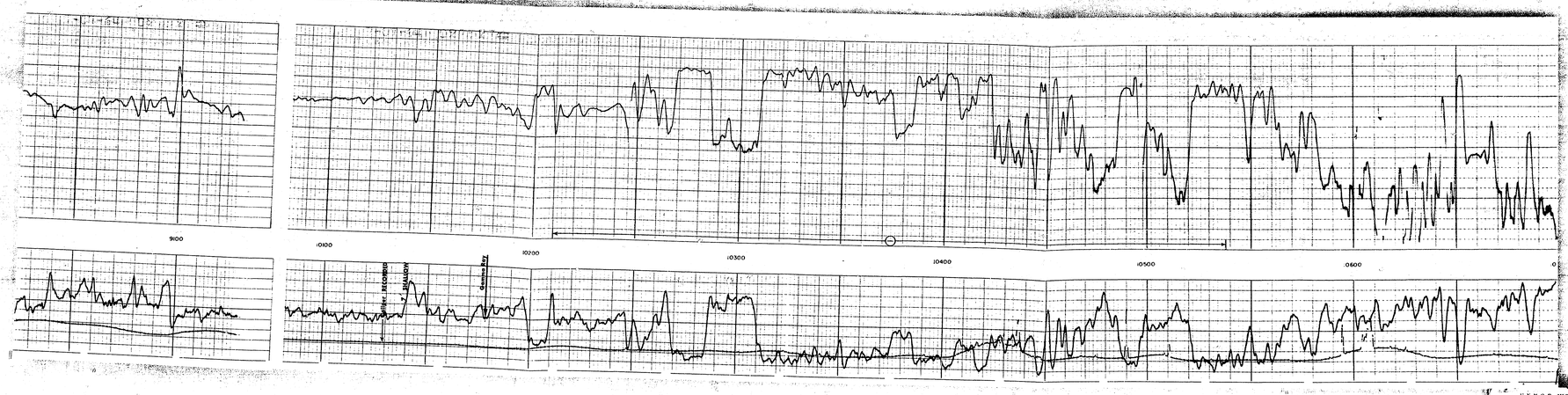

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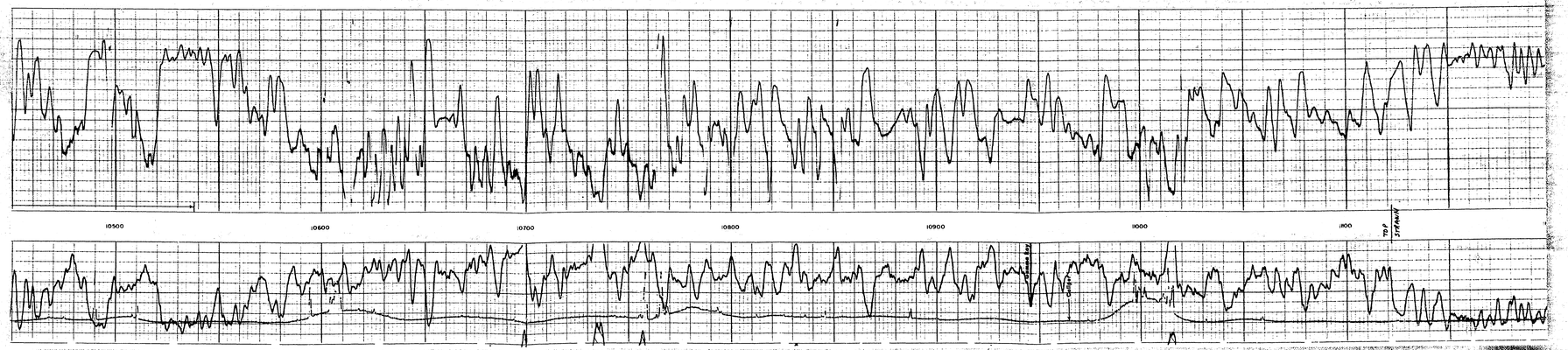

W.R.H.C.F. MICROGRAPHICS

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W.K.M.C.F. MICROGRAPHICS

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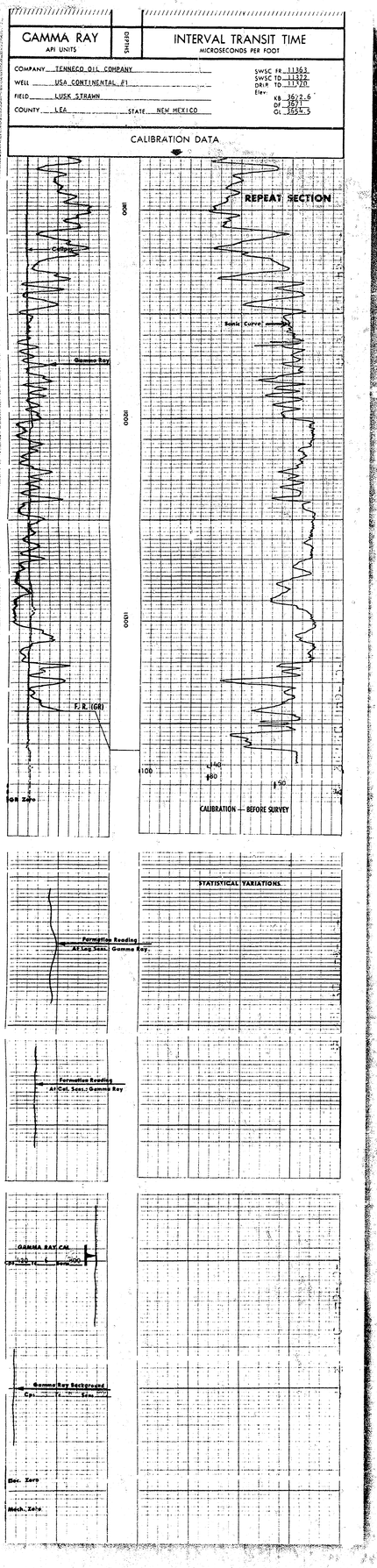
GAMMA RAY
API UNITS
DEPTHS
INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT
COMPANY TENNECO OIL COMPANY
WELL USA CONTINENTAL #1
FIELD LUSK STRAWN
COUNTY LEA STATE NEW MEXICO
SWSC #: 11363
SWSC TD: 11332
DR-M TD: 11720
Elev.
KB 3622.6'
DF 3621'
GL 3595.3
CALIBRATION DATA
REPEAT SECTION
Sonic Curve
Gamma Ray
F. R. (GR)
GR Zero
CALIBRATION — BEFORE SURVEY
STATISTICAL VARIATIONS
Formation Reading
At Cal. Sonic, Gamma Ray
Formation Reading
At Cal. Sonic, Gamma Ray
GAMMA RAY CAL.
Gamma Ray Background
Dec. Zero
Mech. Zero

USA CONTINENTAL Wh. 1
TENNECO OPERATOR

5/22/64 693' Spudded at 660' FNL, 1980' FEL, Sec. 6-19-32, Lea
Cmtd 13 3/8" Csg. at 693' w/700 sx. cmt.
Set 13 3/8" Csg. at 693' w/700 sx. cmt.
DST No. 1 all tools open 90 min. IFP: 107-215;
FFP 1539-1539; Recovered 2700' mud, 1800'
slightly gassy mud, bottom hole temp. 140°.
Tried mud 1 hour.
Tried mud 1 hour. 11,225-11,342', 1590' water cushion.
Tool open 2½ min. w/ore to surface in 3 min.
Flow. 1590' water cushion & 1200' mud. IFP 1035-1035. Flow.
for 60 min. FFP 4539. Stabilized. Rec. 1590' cush.
1200' mud, 1200' water, 1200' salt water. Bottom
1/2" Top: Csk and 5/8" Bottom Chk. Pit 42 Hrs.
7/1/64 11,370' Drilling. Mud:
7/2/64 11,351' PBD Set 4 1/2" Csg. at 11,369' w/250 sx. + 800 sx.
Perf. Strawn 11,246'-11,262' w/4 Shots/ft. Acidized
w/2000 gals. Reperf. 11,246'-11,262' w/4 Shots/ft. Acidized
7/6/64 11,351 PBD w/2000 gals. Swabbed.
7/8/64 11,351' PBD F.P.: 322 in 15 hrs. 0 wtr%, 37° wtrfrm, 7/8 1924,
Drilling Started: 5/22/64 Drilling Completed: 7/4/64

Formation Tops:			
Rustler	971'	San Andres	4627'
Yates	2037'	Bone Springs	6861'
Seven Rivers	2337'	Wolfcamp	9110'
Queen	3033'	Strawn	11,111'
Grayburg	4131'	Mpff	11,338'

M.N.M.C.P. MICROGRAPHICS
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PAN GEO ATLAS CORP.

PGAC Acoustic-Gamma Ray Log

FILE NO.

COMPANY Tenneco Oil Company
WELL USA Continental "A" No. 1
FIELD Lusk STRAWN
COUNTY Lea STATE New Mexico
LOCATION: 1980' FNL & 1650' FEL
Other Services
SEC 6 TWP 19-S RGE 32-E

Permanent Datum Ground level Elev.
Log Measured from K.B. 16.8 Ft. Above Permanent Datum
Drilling Measured from K.B.
Elevations: KB DF 3675 GL

Date	9-3-64
Run No.	ONE
Total Depth Driller	11,436
Total Depth PGAC	11,438
Bottom Logged Interval	11,432
Casing Driller	3599
Casing PGAC	3598
Footage Logged	11,432
Mud Type	Salt Base
Density Visc.	10.0 34
Max. Temp. (F)	151°
Rec. To Rec. Spacing	1' F3'
Trans. To Rec. Spcg.	4'
Logging Instrument	[illegible]
Equip. No.	ES16 3
Recorded By	Bob Moody
Witnessed By	Mr. Collins

Field Print

BORE HOLE RECORD			CASING RECORD			
Bit Size	From	To	Csg. Size	Csg. Wt.	From	To
17 1/2"	Surf	650	13 3/8		Surf	650
11"	650	3600	8 5/8		Surf	3599
7 7/8	3600	11,436				

GAMMA RAY LOGGING DATA

Run No.	Depths From	Depths To	Speed Ft./Min.	T.C. Sec.	Sens. Settings	Zero Div. L or R	API G.R. Units Per Log Div.
1	11422	100	40	1	770	5	12.5

Run No.	ONE
Tool Model No.	[illegible]
Diam.	3 5/8
Detect. Model No.	[illegible]
Type	Scint
Length	5"

Job No.

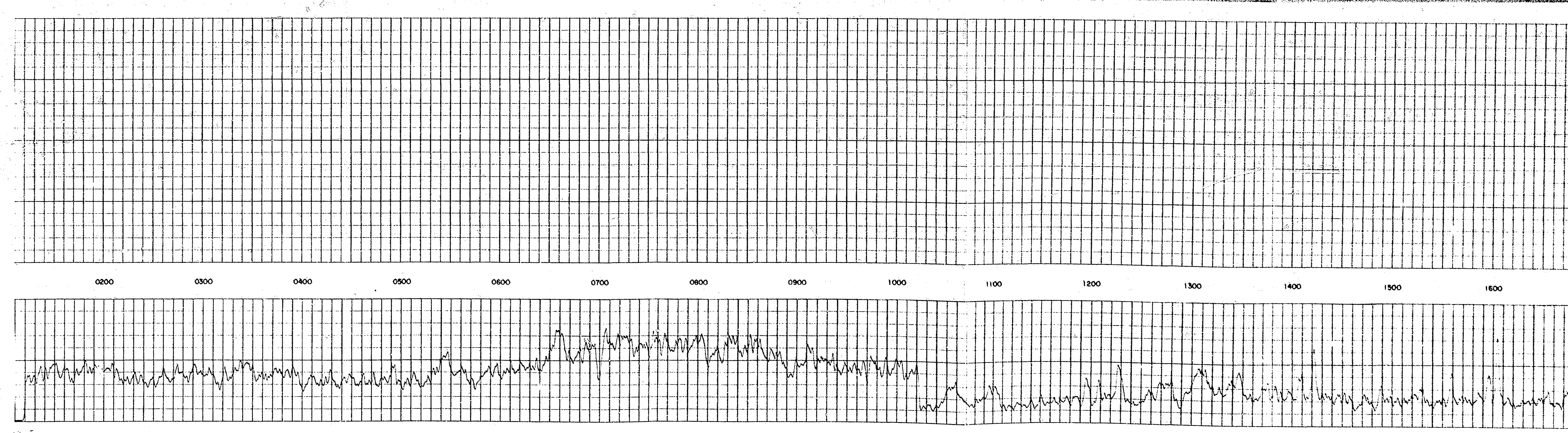
REMARKS:

* INFORMATION NOT AVAILABLE

ACOUSTIC
DUAL RECEIVER R.R. 1'
SINGLE RECEIVER T.R. 4'
Dual Receiver Linear Time in Microseconds Per Foot
100 85 70 55 40

DEPTHS

GAMMA RAY LOG
API GAMMA RAY UNITS 0 [illegible] 250
CALIPER LOG
6 7 8 9 10 11 12 13 14
HOLE SIZE - INCHES



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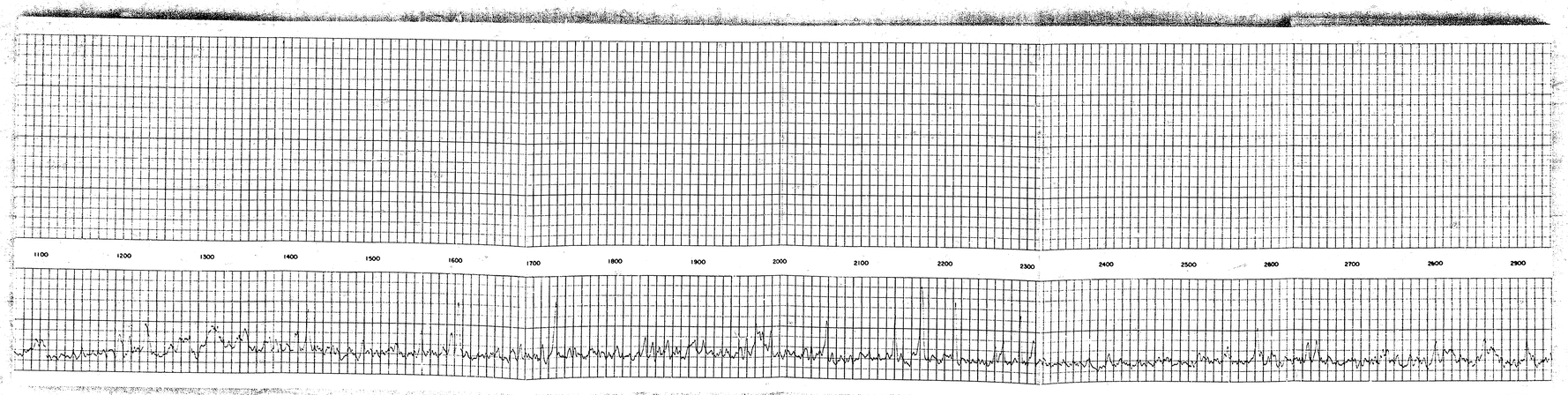

V.V.M.C.P. MICROGRAPHICS

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W.N.M.C.F. MICROGRAPHICS

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V.N.M.C.F. MICROGRAPHICS

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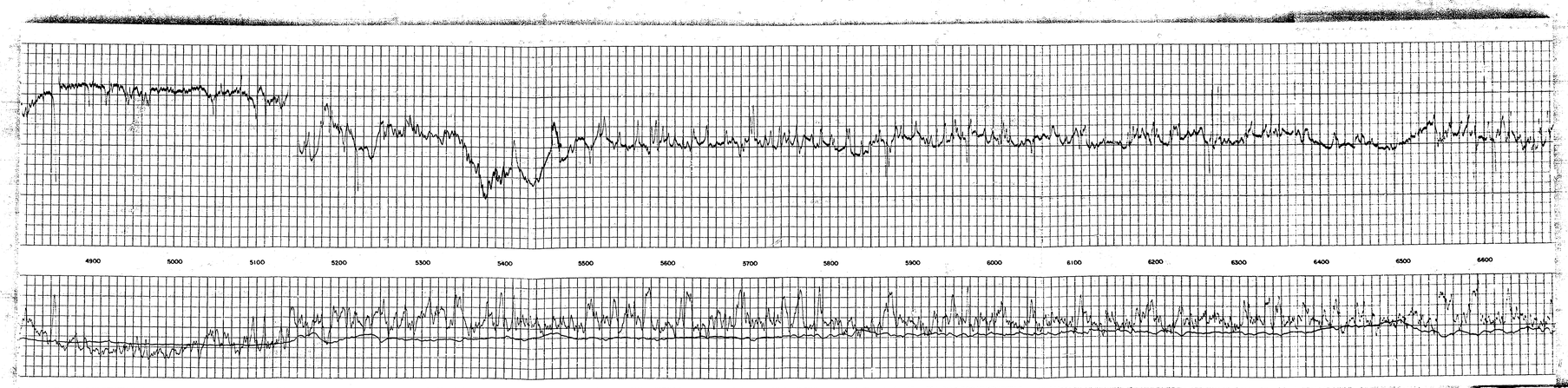

W.M.H.C.F. MICROGRAPHICS

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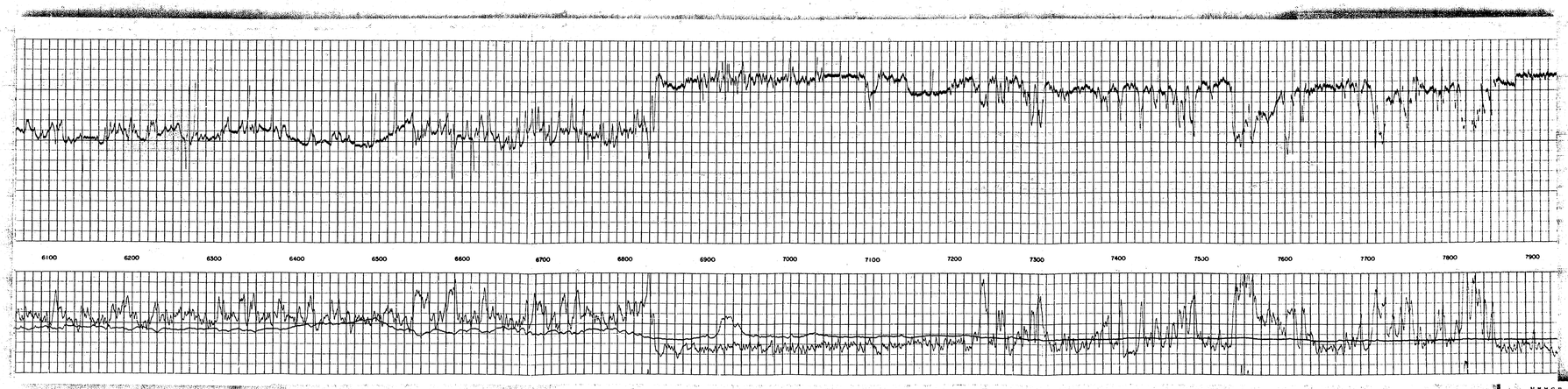

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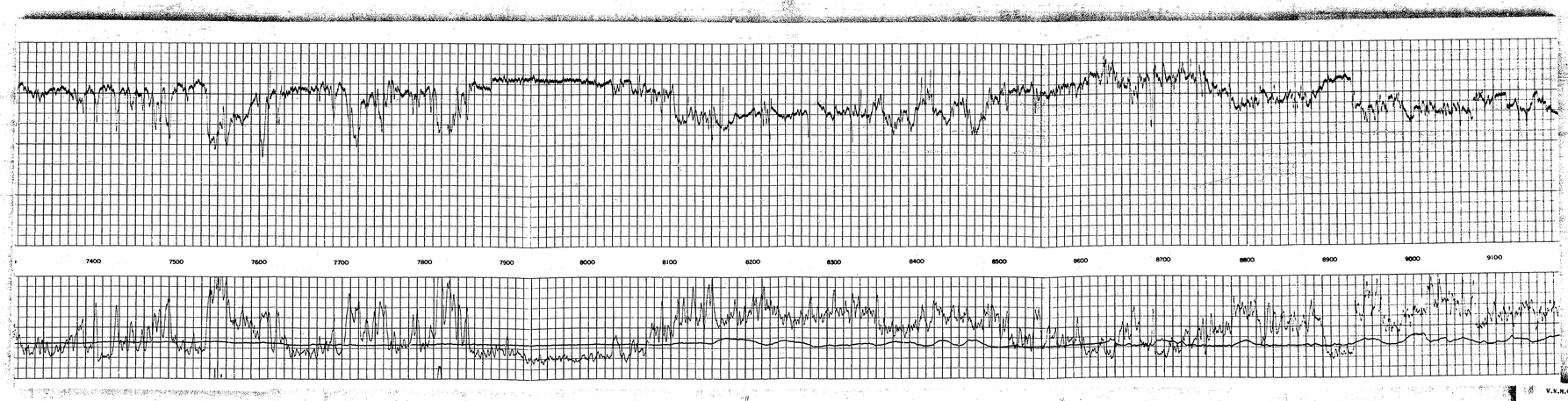

V.N.M.C.F. MICROGRAPHICS

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W.R.M.C.F. MICROGRAPHICS

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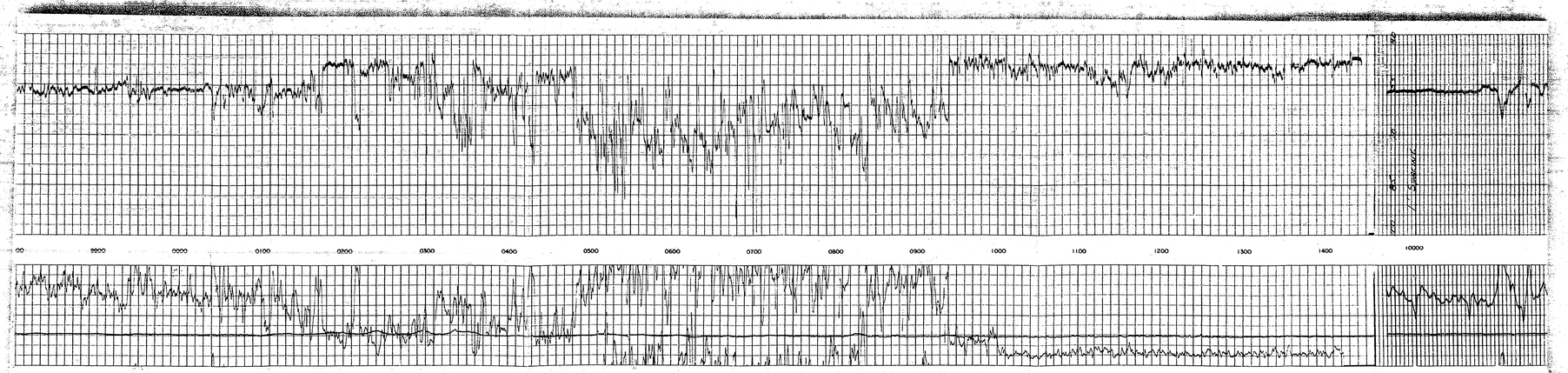

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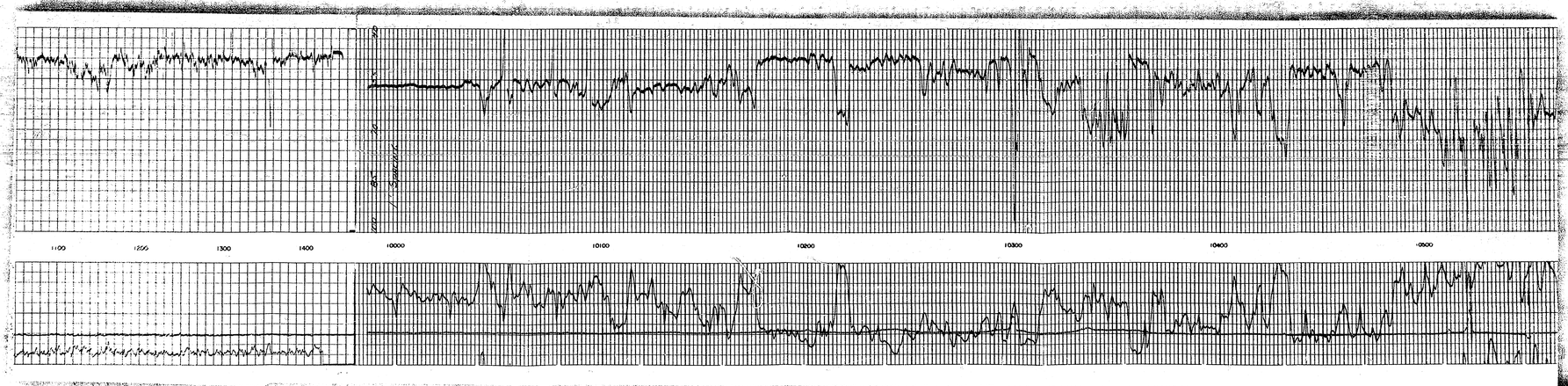

V.P.R.C.F. MICROGRAPHICS

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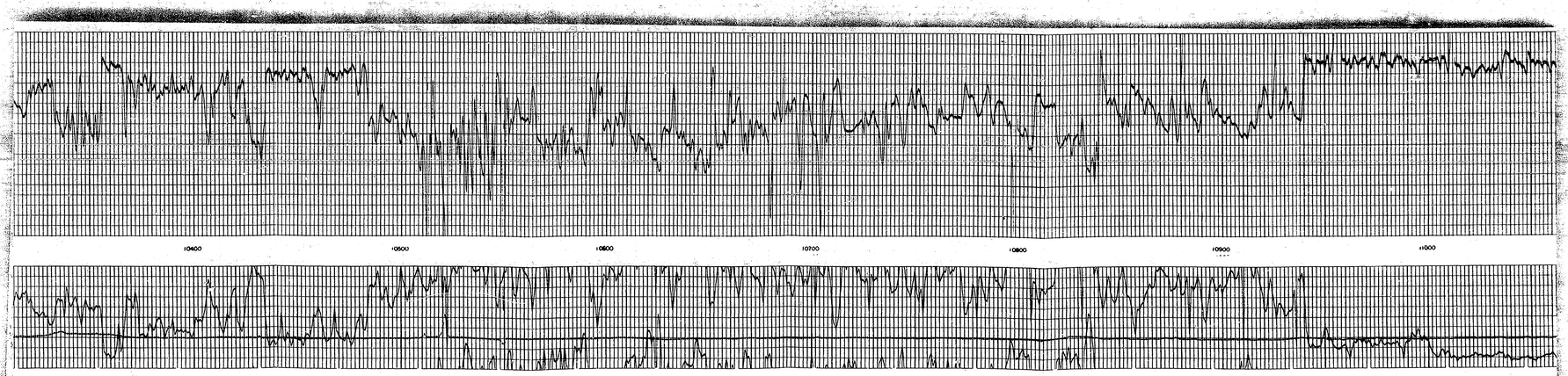

U.N.M.C.F. MICROGRAPHICS

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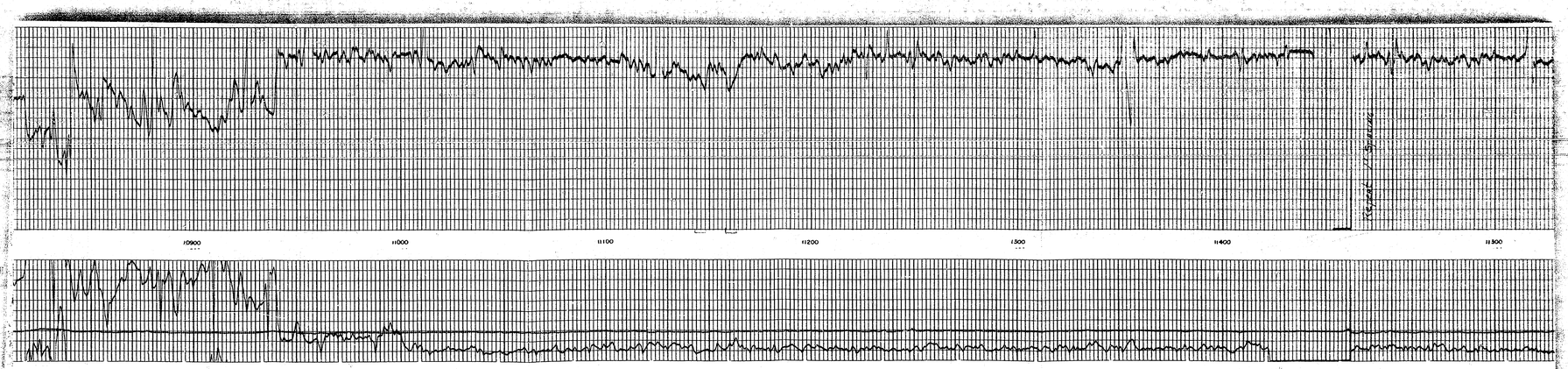

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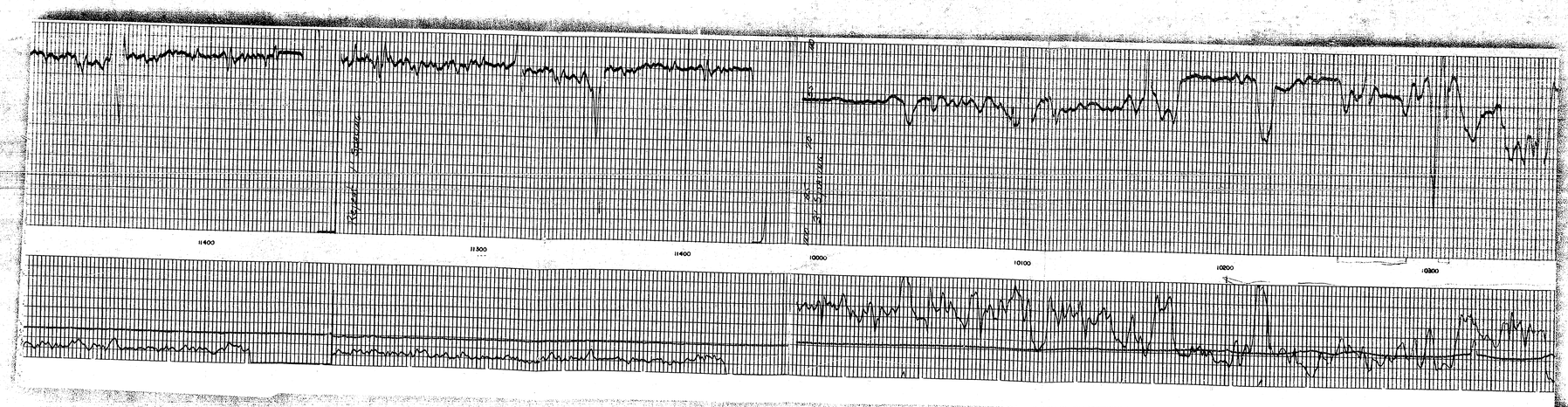

U.S.N.C.F. MICROGRAPHICS
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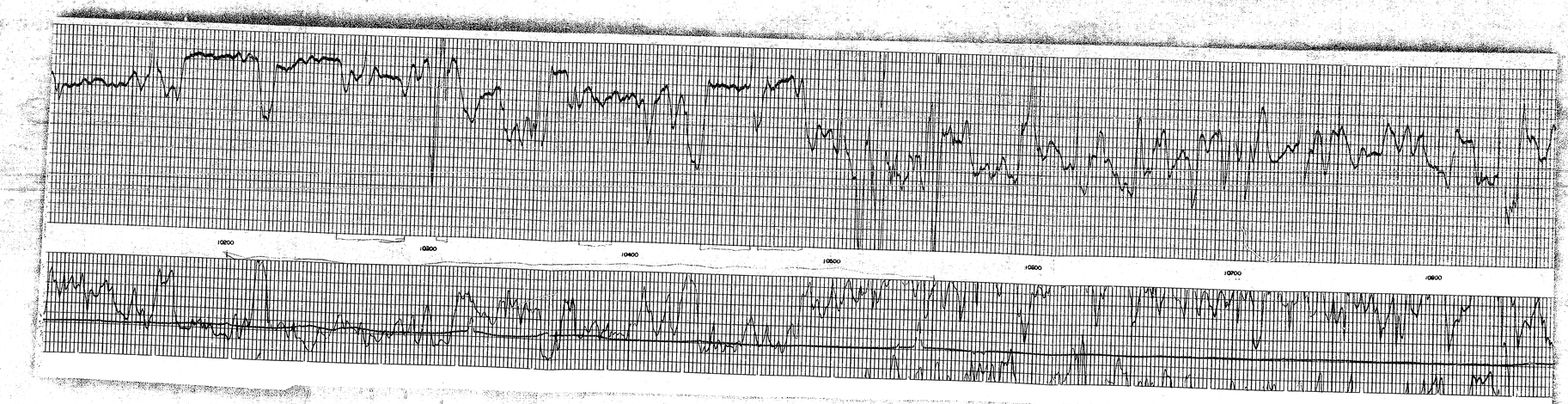

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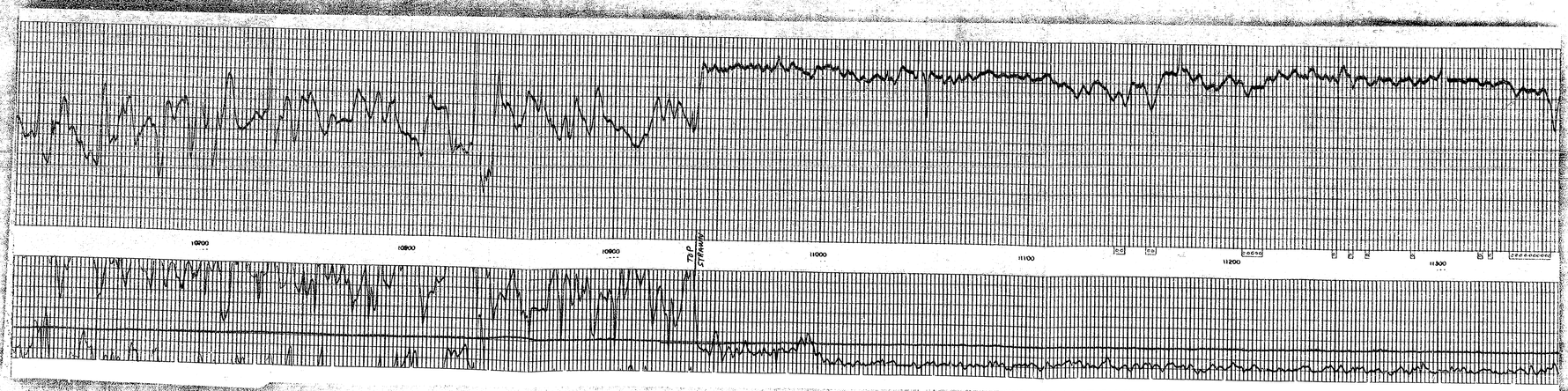

V.N.M.C.F. MICROGRAPHICS
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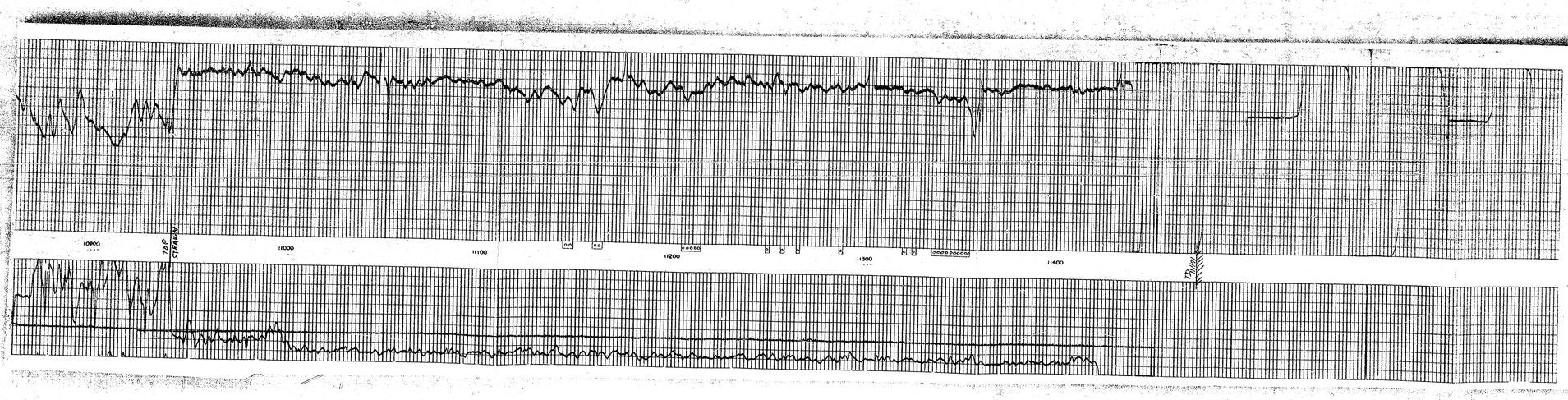

W.N.M.G.F. MICROGRAPHICS
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