

STATE OF NEW MEXICO

**ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT**

OIL CONSERVATION

CASE #: 14271

EXHIBIT 1

Oil Conservation Division Hearing

Vanguard Permian, LLC Exhibits

Santa Fe, NM

04/16/09

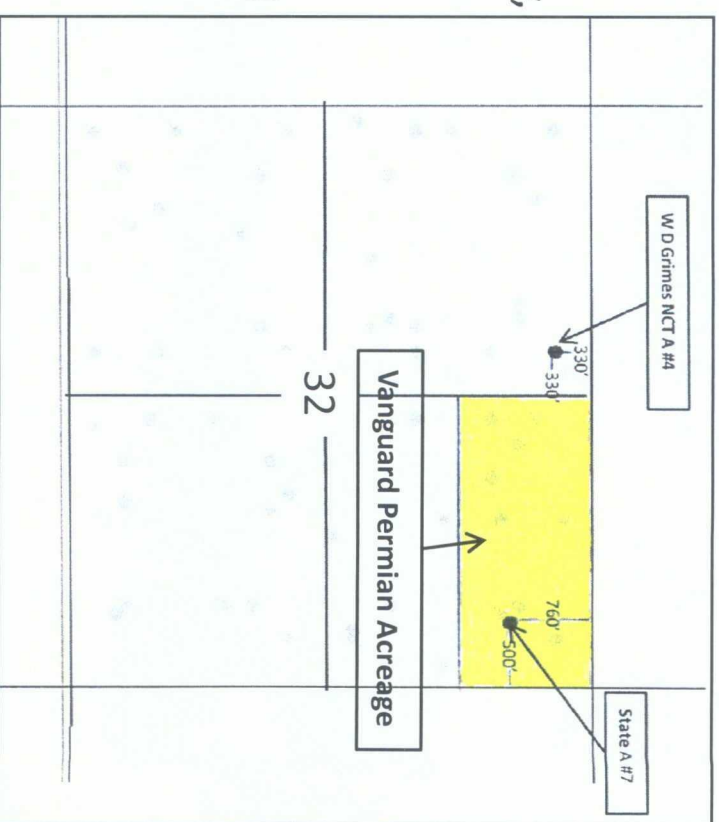
Oil Conservation Division
Case No. 14271
Exhibit No. 1

Vanguard's Proposal

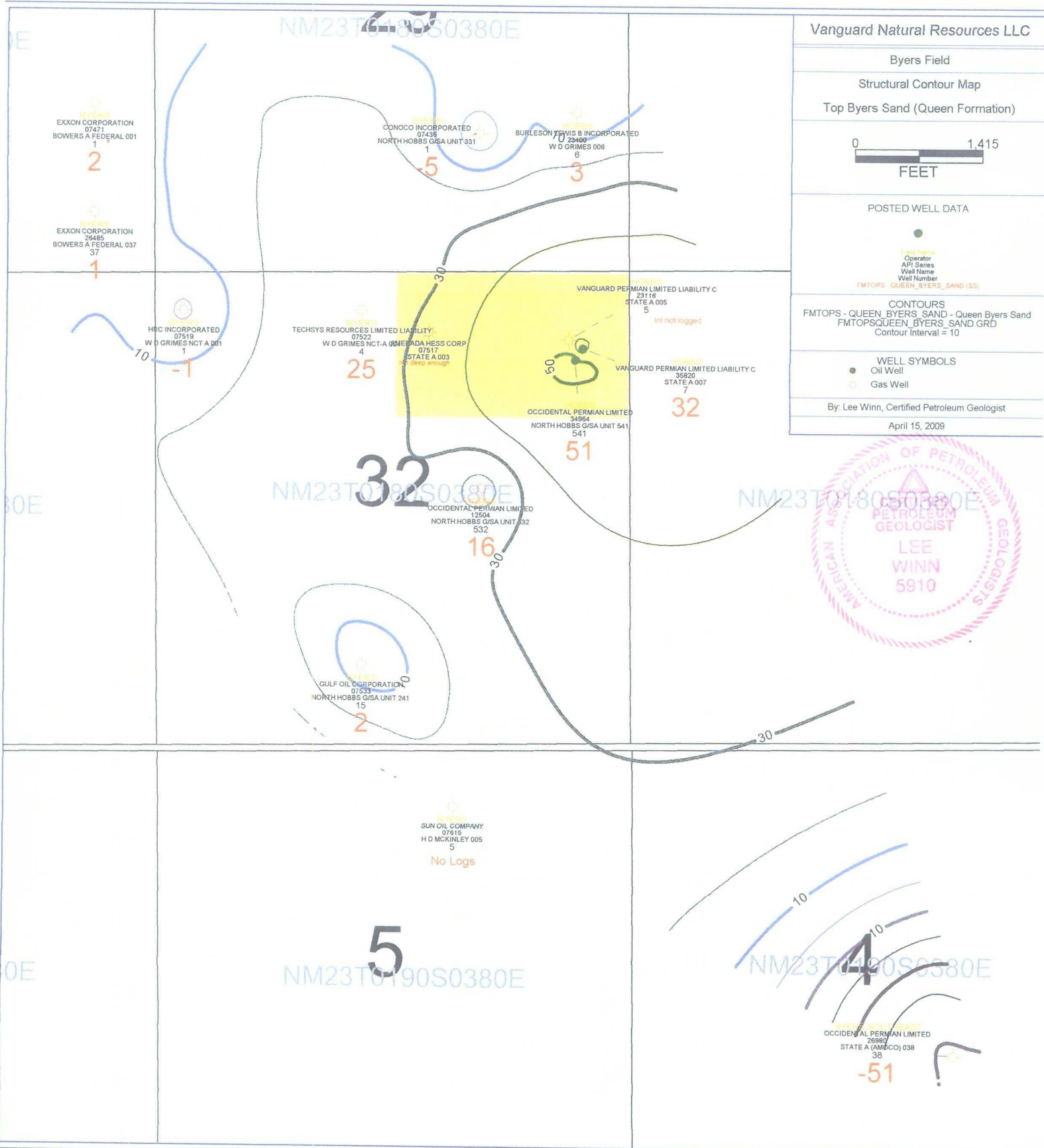
- OCD approval for a non-standard gas spacing and proration unit in the Queen formation (Byers-Queen Gas Pool) comprised of the N1/2 NE1/4 of Section 32, Township 18, Range 38 East, NMPM, and an unorthodox gas well location in the Queen formation for the **State A Well No. 7**, located 760 feet from the North line and 500 feet from the East line of Section 32.

Key Wells

- State A #7 (API 30-025-35820)
 - Operated by Vanguard Permian, LLC
 - Location: Sec 32 Twp 18S Range 38E, 760' from North and 500' from East, Lea County, NM
 - Queen perforations: 3,624-28', 3,645-51', 3,666-80'
 - Fractured with 60,000 #s Brady Sand
- W D Grimes NCT A #4 (API 30-025-07522)
 - Operated by Techsys Resources LLC
 - Location: Sec 32 Twp 18S Range 38E, 330' from North and 2310' from East, Lea County, NM (2,507' WNW of State A #7)
 - Original Queen perforations: 3,630 – 3,700'
 - In May 2000 re-perforated at: 3612-18', 3646-52', 3666-74'. Stimulated with 1500 gals of HCl

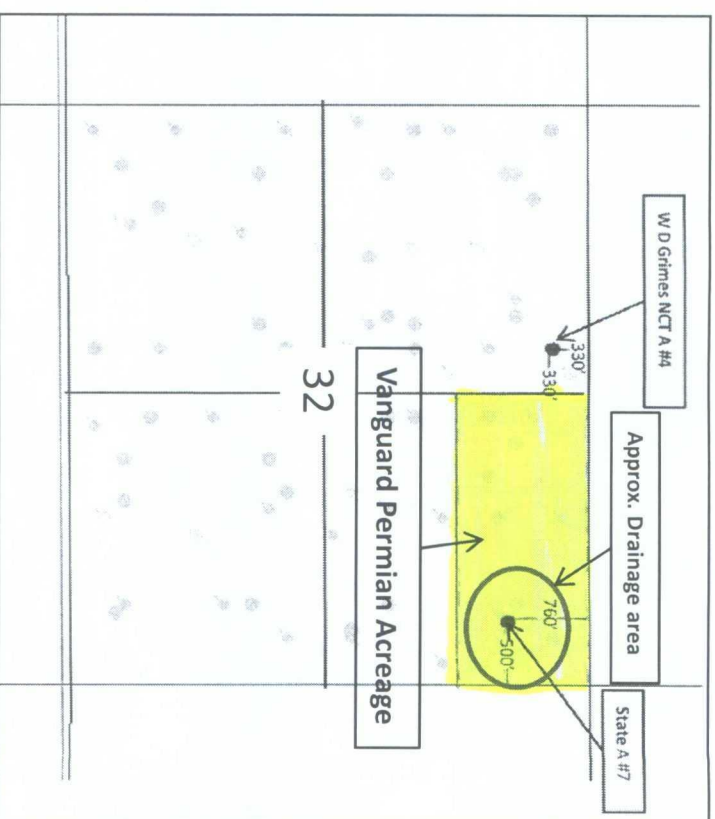


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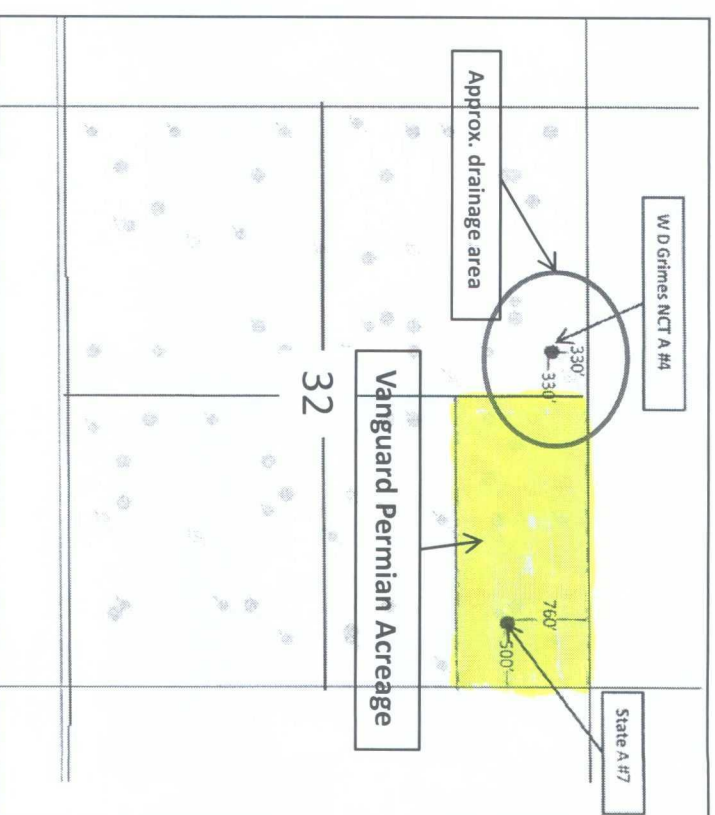
State A #7 – Volumetric Calculations

- Assumptions:
 - Gas Gravity = 0.74 (gas analysis)
 - N₂ content = 10.1% (gas analysis)
 - Initial Formation Pressure = 1650 psi (est. based on 0.45 psi/ft)
 - Reservoir Temperature = 100 °F
 - S_w = 20% (est., no water prod.)
 - Pay using 8% crossplot porosity cutoff = 34 ft (log calculations)
 - Average porosity of pay = 10.7% (log calculations)
- Using 181 MMscf EUR and 75% recovery (est.)
 - Calculated drainage area = 14.5 acres
 - Calculated drainage radius = 448'

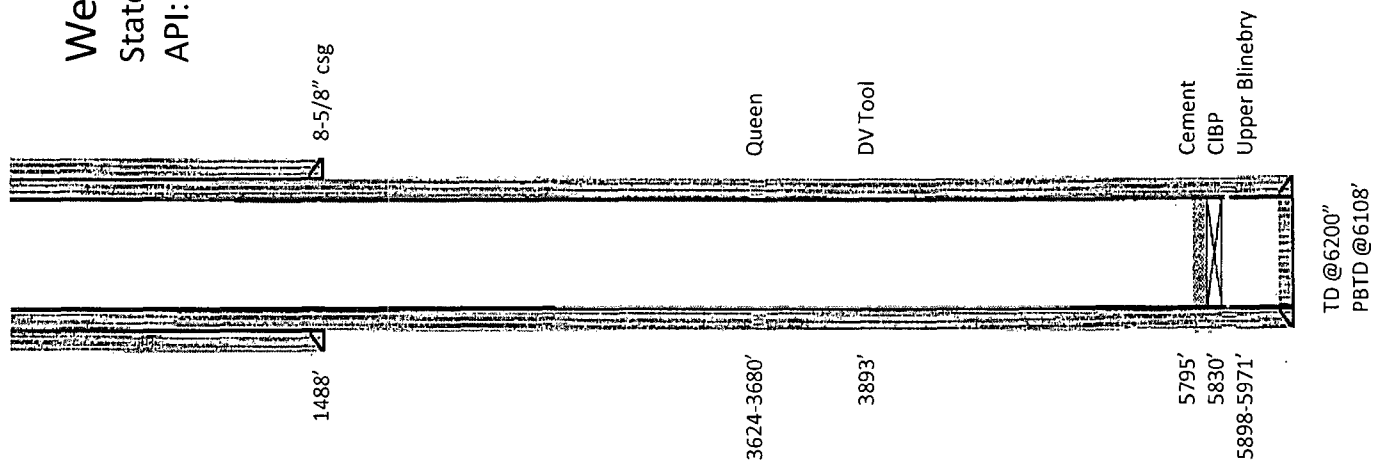


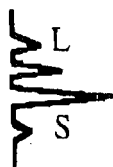
W D Grimes NCT A #4 –Volumetric Calculations

- Assumptions:
 - Used same gas analysis, pressure, temperature, pay and porosity values as the State A #7 due to lack of data
- Using 513 MMscf EUR (beginning May 2000) and 75% recovery
 - Calculated drainage area = 40.6 acres
 - Calculated drainage radius = 750'



Well Diagram
State A #7
API: 30-025-35820





Laboratory Services, Inc.
2809 West Marland
Hobbs, New Mexico 88240

Telephone: (575) 397-3713

FOR: Vanguard Permian LLC
Attention: Newt Painter
1209 S. Main
Lovington, New Mexico 88260

SAMPLE: IDENTIFICATION State A #7
COMPANY: Vanguard Permian
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 3/13/09
ANALYSIS DATE: 3/13/09
PRESSURE - PSIG
SAMPLE TEMP. °F
ATMOS. TEMP. °F 36

GAS (XX) LIQUID ()
SAMPLED BY: Harvey
ANALYSIS BY: Vickie Sullivan

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H2S)		
Nitrogen (N2)	10.137	
Carbon Dioxide (CO2)	0.076	
Methane (C1)	73.876	
Ethane (C2)	8.324	2.221
Propane (C3)	3.975	1.093
I-Butane (IC4)	0.503	0.164
N-Butane (NC4)	1.270	0.400
I-Pentane (IC5)	0.348	0.127
N-Pentane (NC5)	0.429	0.155
Hexane Plus (C6+)	<u>1.062</u>	<u>0.461</u>
	100.000	4.621
BTU/CU.FT. - DRY	1133	MOLECULAR WT. 21.5519
AT 14.650 DRY	1128	
AT 14.650 WET	1110	
AT 14.73 DRY	1136	
AT 14.73 WET	1116	
SPECIFIC GRAVITY -		
CALCULATED	0.742	
MEASURED		

Integrated Hole/Cement Volume Summary

Hole Volume = 2490.02 F3

Cement Volume = 1711.55 F3 (assuming 5.50 IN casing O.D.)

Computed from 6200.0 FT to 1482.0 FT using data channel(s) HCAL

OP System Version: 9C2-303

MCM

HILTB-CTS

OP92-KP2

ESP

9C2-303

Changed Parameter Summary

DLIS Name

New Value

Previous Value Depth & Time

BHS

CASED

OPEN

1454.6 11:39:49

PIP SUMMARY

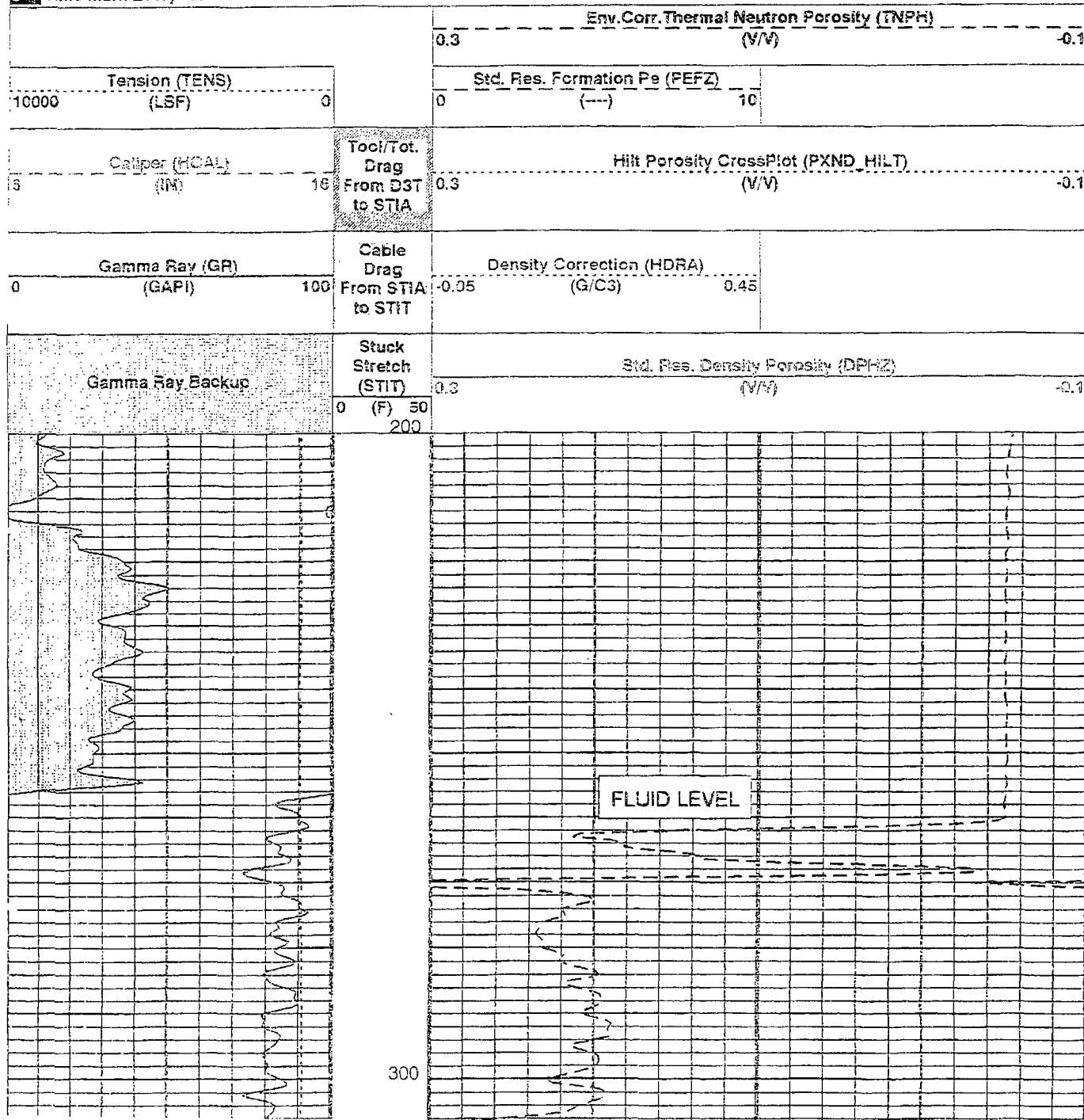
Integrated Hole Volume Minor Pip Every 10 F3

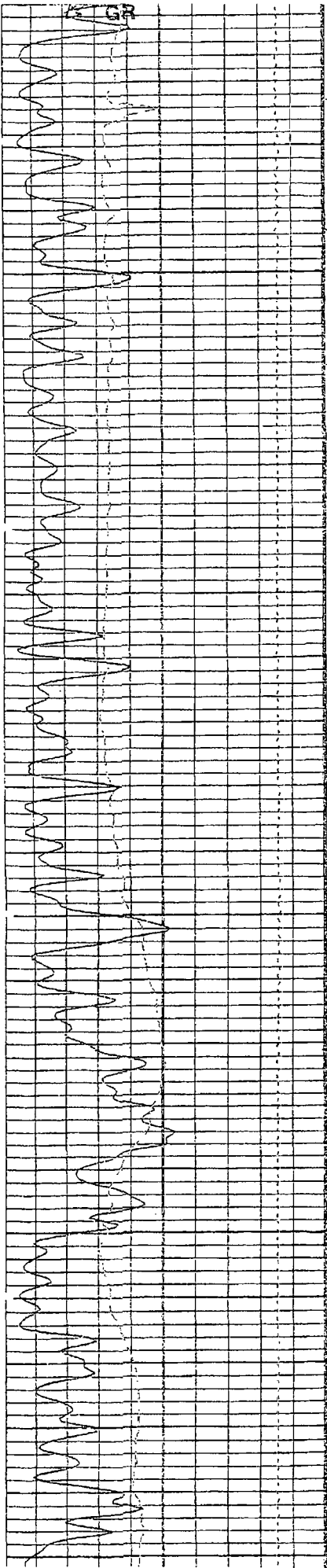
Integrated Hole Volume Major Pip Every 100 F3

Integrated Cement Volume Minor Pip Every 10 F3

Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

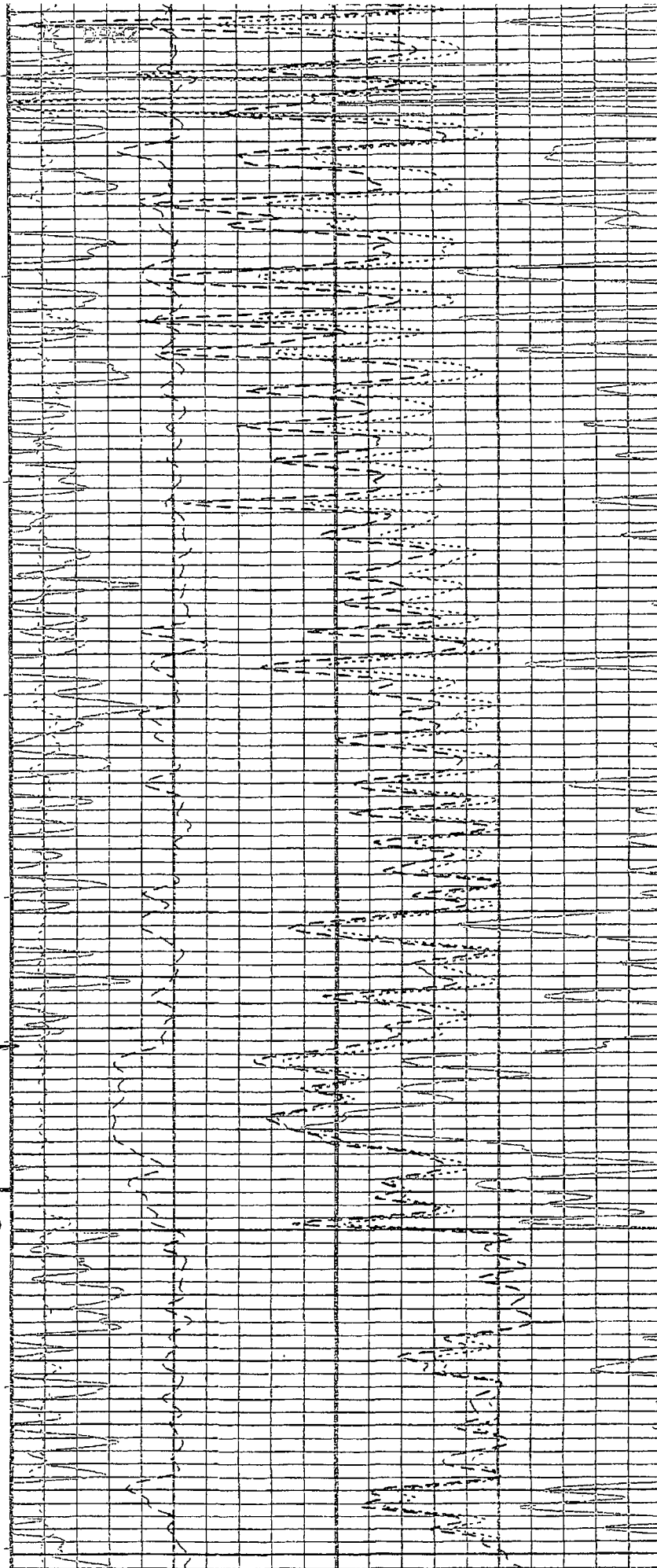




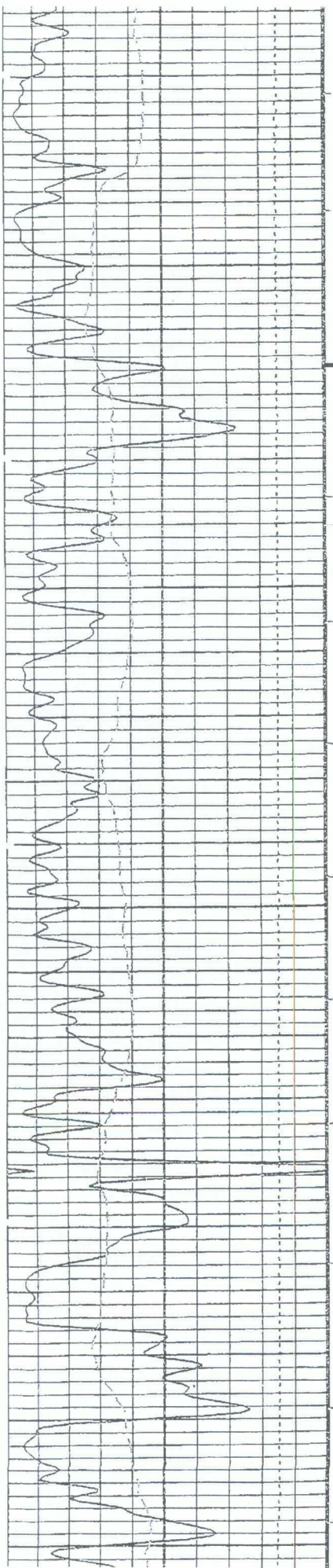
3300

Top
QUEEN

3400



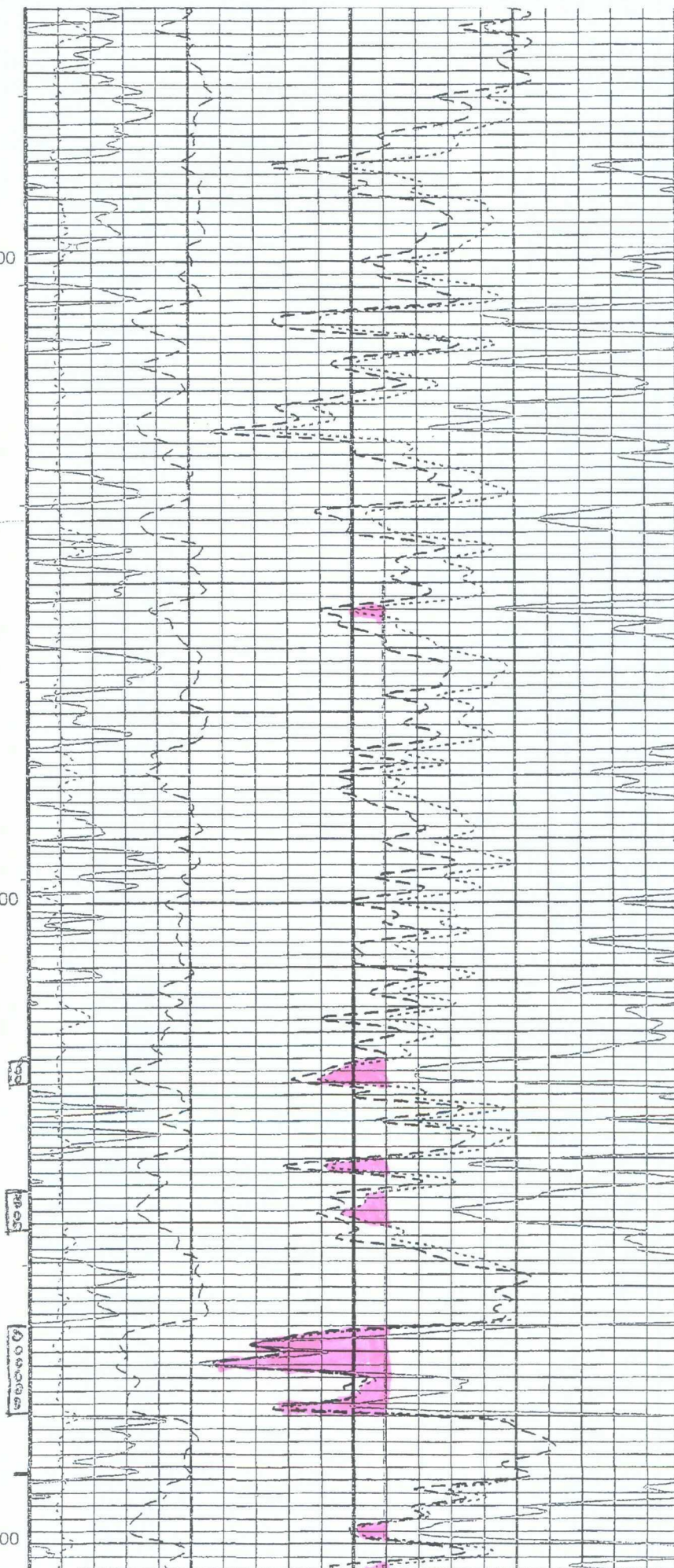
2



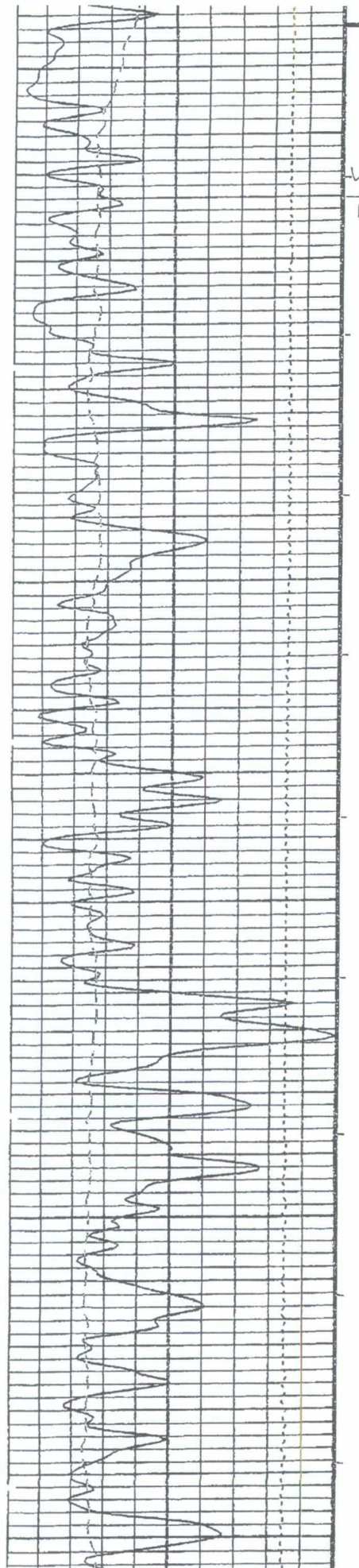
offset
= 1000
m/sec

3500

3600



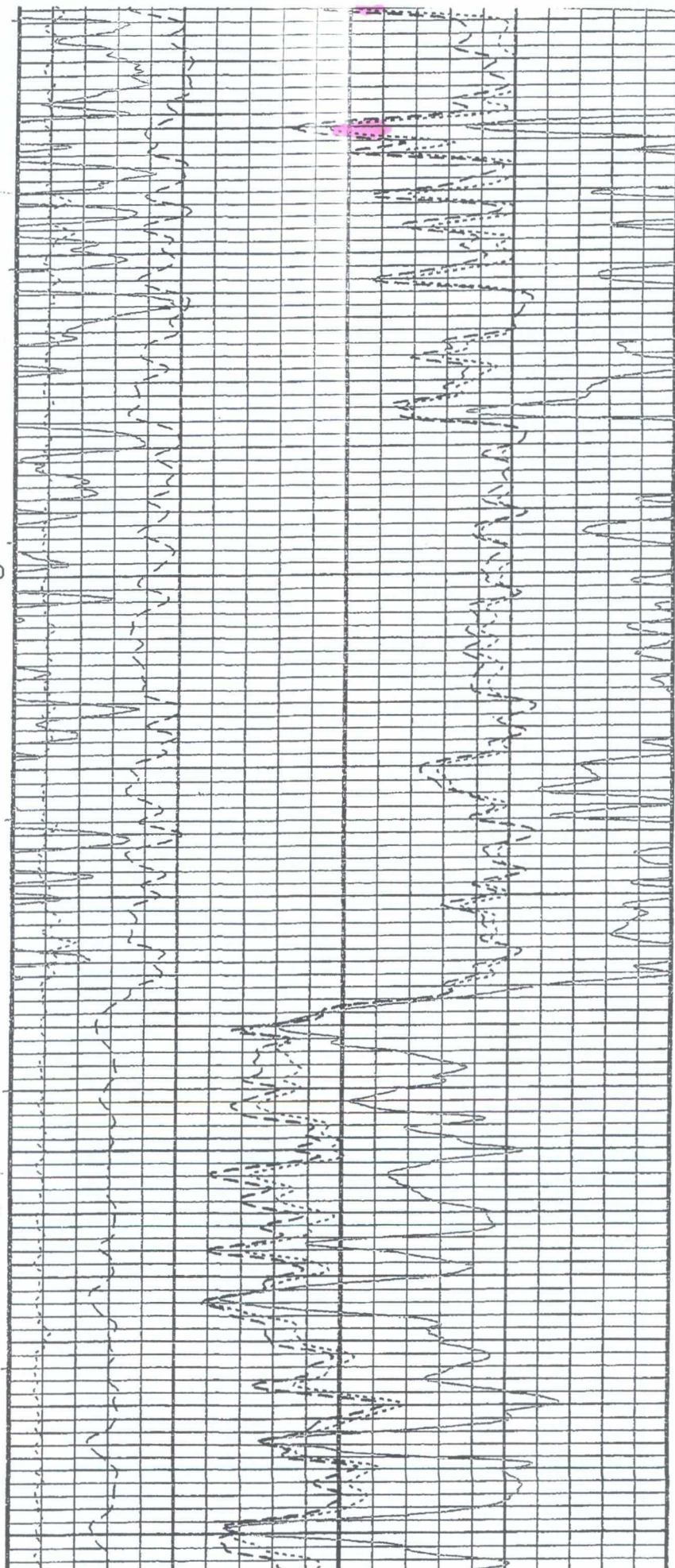
3700



lower
far
light

3800

3900



LANE RADIOACTIVITY LOG WELLS COMPANY

Location of Well	COMPANY: GULF OIL CORP.	COUNTY: IZA FIELD OR SURVEY: HOSES WELL: WEST GRILES NO. 4 COMPANY: GULF OIL CORP.
	WELL: WEST GRILES NO. 4	
	LOCATION: NE NE NW SEC 32, T-18S, R-30E	
	FIELD: HOSES	
	COUNTY OR PARISH: IZA	
Elevation 3640'	STATE: NEW MEXICO	
	DATE: SEPTEMBER 27, 1947	

WELL RECORD

Bottom Depth Company 3884 ft. STRAIN
Maximum Depth Reached: 3958 ft.
Surveyed From 3862 ft. to 2500 ft.
Footage Recorded: 1362 ft.
Well Fluid: OIL
Fluid Level: FULL ft.

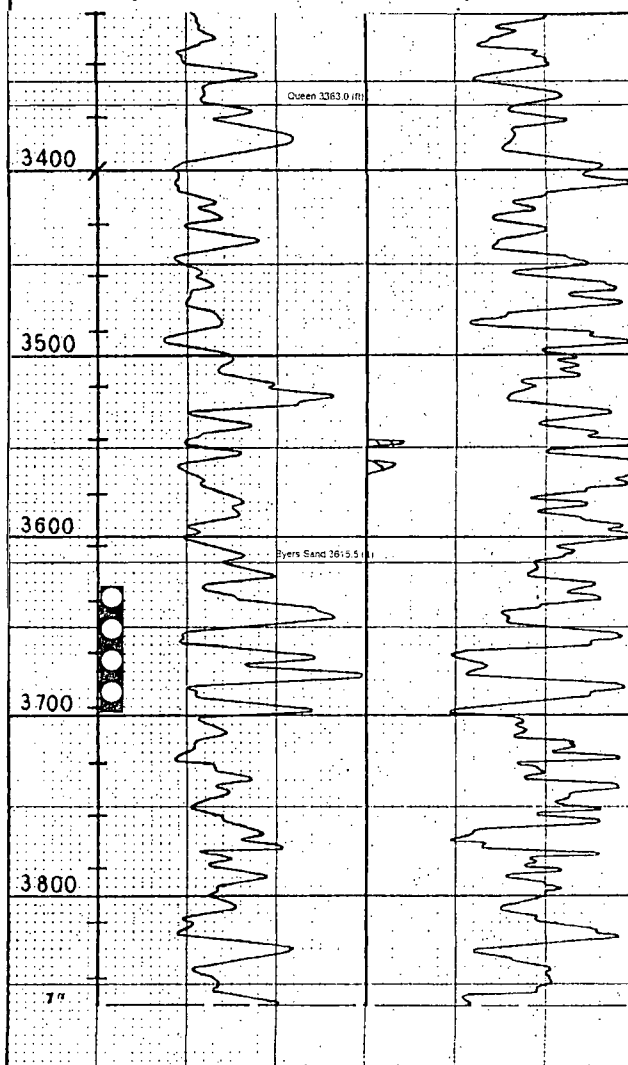
CASING RECORD

7 in., #, from SURFACE to T.D. ft.
in., #, from to ft.
in., #, from to ft.

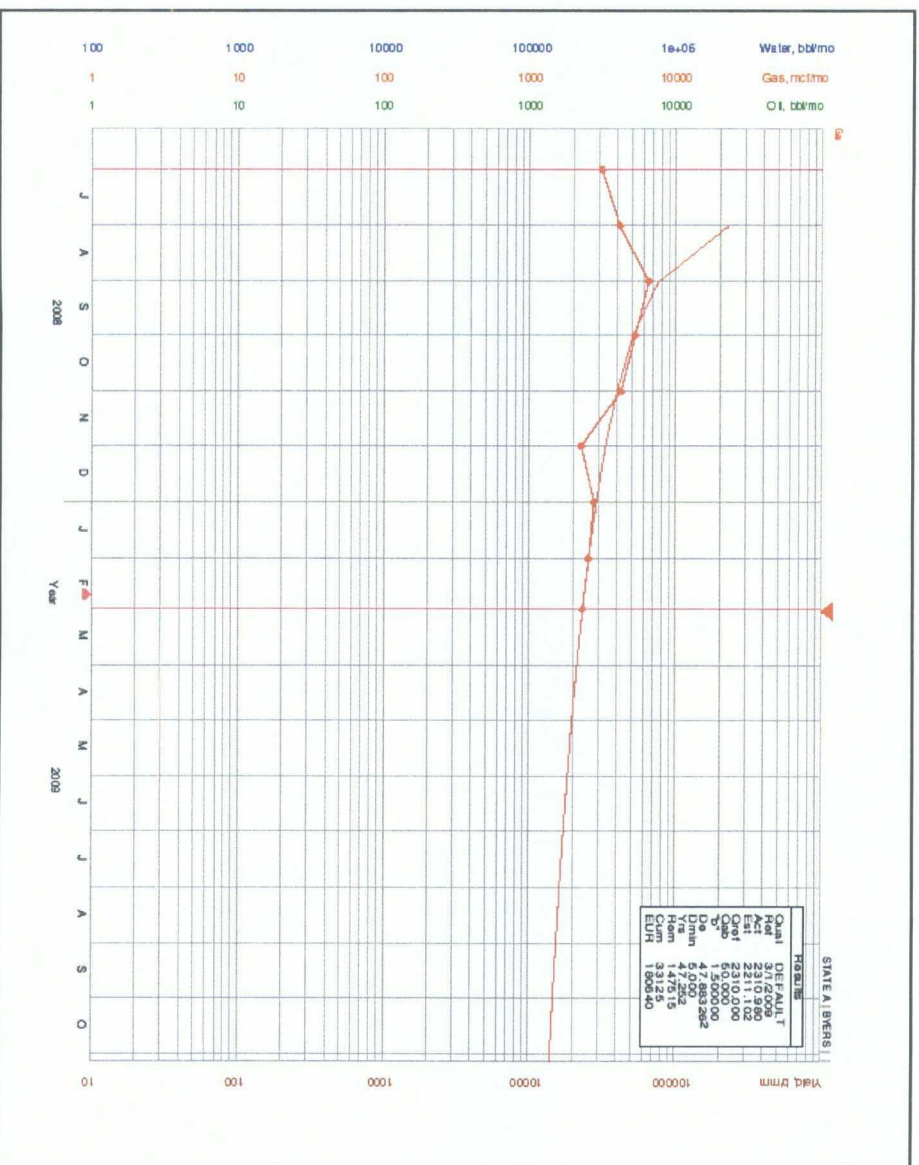
REMARKS

SCALE: GAMMA RAY CURVE - 274 STANDARD
8.45" DEPLETION FROM 3862' TO 2500'
SCALE: NEUTRON CURVE - 275 STANDARD
4.03" DEPLETION FROM 3862' TO 2500'
PERMANENT DEPTH REFERENCE: TOP OF ROTARY IS 5' ABOVE GROUND LEVEL
LOCATED CASING COLLARS AS SHOWN ON LOG

Depths Measured From TOP OF ROTARY Ordered By: L. H. BRANT
Recorded By: MOERIS & RUNION Witnessed By: L. H. BRANT

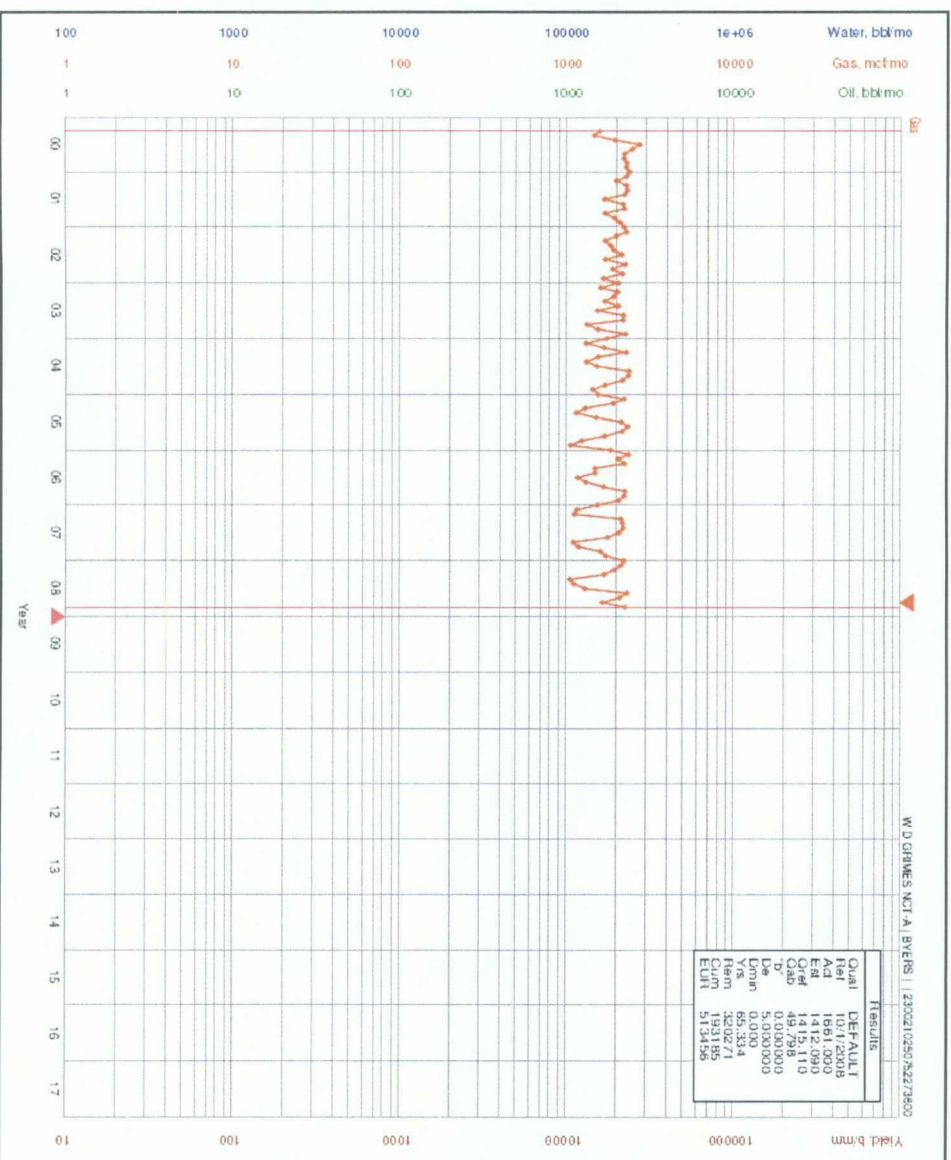


State A #7



- Cumulative production:
33 MMscf
- EUR: 181 MMscf
- Current production:
76 Mscf/d

W D Grimes NCT A #4



- Cumulative production since 2000: 193 MMscf
- EUR: 513 MMscf
- Avg 2008 production: 58 Mscf/d

VOLUMETRIC CALCULATIONS FOR STATE A #7

Well Name: State A 7

Field Name: Byers Queen Field near Hobbs, NM

Gas Gravity

0.74

Condensate Gravity

40 API

% N2

10.14

Temperature-res

100 F

% CO2

0.08

Condensate (Yes = 1)

0

% H2S

0.00

Init. Pressure

1650 psia

Porosity

0.107

Sw

0.200

Res. Volume

493 acre-feet

14.5 pay =

34

dP, %	BHP, psia	Z	Bg, scf/rcf	GLP, mcf/af	Volumetric Unit Recoveries, per acre-foot			Volumetric Recovery, bcf
Init.					mcf	mcf/psi	%	
Init.	1,650	0.784	132.9	496	0	0.000	0.0	0.000
5	1,568	0.803	123.2	459	36	0.441	7.3	0.018
10	1,485	0.810	115.8	432	64	0.334	12.9	0.032
15	1,403	0.817	108.4	404	91	0.333	18.4	0.045
20	1,320	0.824	101.1	377	119	0.331	23.9	0.059
25	1,238	0.833	93.8	350	146	0.328	29.4	0.072
30	1,155	0.841	86.7	323	173	0.324	34.8	0.085
35	1,073	0.851	79.6	297	199	0.320	40.1	0.098
40	990	0.861	72.6	271	225	0.315	45.4	0.111
45	908	0.871	65.8	245	250	0.309	50.5	0.123
50	825	0.882	59.1	220	275	0.303	55.6	0.136
55	743	0.893	52.5	196	300	0.297	60.5	0.148
60	660	0.904	46.1	172	324	0.290	65.3	0.160
65	578	0.915	39.8	148	347	0.283	70.0	0.171
70	495	0.927	33.7	126	370	0.277	74.6	0.182
75	413	0.939	27.7	103	392	0.270	79.1	0.193
80	330	0.951	21.9	82	414	0.263	83.5	0.204
85	248	0.963	16.2	60	435	0.257	87.8	0.215
90	165	0.975	10.7	40	456	0.251	92.0	0.225
95	82	0.988	5.3	20	476	0.244	96.0	0.235
100	15	0.998	0.9	3	492	0.239	99.3	0.243

Recovery = 0.181 divided by 0.243 75%

VOLUMETRIC CALCULATIONS FOR GRIMES #4

Well Name: W D Grimes NCT -A#4
Field Name: Byers Queen Field near Hobbs, NM

Gas Gravity 0.74 Condensate Gravity 40 API
% N2 10.14 Temperature-res 100 F
% CO2 0.08 Condensate (Yes = 1) 0
% H2S 0.00
Init. Pressure 1650 psia
Porosity 0.107
Sw 0.200

Res. Volume				1390.6 acre-feet	acres=	40.9 pay =			34
dP, %	BHP, psia	Z	Bg, scf/rcf	GIP, mcf/af	Volumetric Unit Recoveries, per acre-foot			Volumetric Recovery, bcf	
					mcf	mcf/psi	%		
Init.	1,650	0.784	132.9	496	0	0.000	0.0	0.000	
5	1,568	0.803	123.2	459	36	0.441	7.3	0.051	
10	1,485	0.810	115.8	432	64	0.334	12.9	0.089	
15	1,403	0.817	108.4	404	91	0.333	18.4	0.127	
20	1,320	0.824	101.1	377	119	0.331	23.9	0.165	
25	1,238	0.833	93.8	350	146	0.328	29.4	0.203	
30	1,155	0.841	86.7	323	173	0.324	34.8	0.240	
35	1,073	0.851	79.6	297	199	0.320	40.1	0.277	
40	990	0.861	72.6	271	225	0.315	45.4	0.313	
45	908	0.871	65.8	245	250	0.309	50.5	0.348	
50	825	0.882	59.1	220	275	0.303	55.6	0.383	
55	743	0.893	52.5	196	300	0.297	60.5	0.417	
60	660	0.904	46.1	172	324	0.290	65.3	0.450	
65	578	0.915	39.8	148	347	0.283	70.0	0.483	
70	495	0.927	33.7	126	370	0.277	74.6	0.514	
75	413	0.939	27.7	103	392	0.270	79.1	0.545	
80	330	0.951	21.9	82	414	0.263	83.5	0.576	
85	248	0.963	16.2	60	435	0.257	87.8	0.605	
90	165	0.975	10.7	40	456	0.251	92.0	0.634	
95	82	0.988	5.3	20	476	0.244	96.0	0.662	
100	15	0.998	0.9	3	492	0.239	99.3	0.684	

Recovery = 0.513 divided by 0.684 75%