Schlumberger

DUAL INDUCTION - SFL

WITH LINEAR CORRELATION LOG

COUNTY MORROW
FIELD WILDCAT
LOCATION 1755'S AND 1414'W
WELL "ARCO HANNA" #1
COMPANY ARCO OIL AND GAS

COMPANY	ARCO OIL AND GAS
WELL	"ARCO HANNA" #1
FIELD	WILDCAT
COUNTY	MORROW **STATE** OREGON

LOCATION	1755'S AND 1414'W FROM NE CORNER				Other Services:
API SERIAL NO.		SECT. 23	TWP. 2S	RANGE 27E	

Permanent Datum	GL	Elev.	3199.5 F	Elev.: K.B.3225.5 F
Log Measured From	KB	26.0 F	above Perm. Datum	D.F.3224.5 F
Drilling Measured From	KB			G.L.3199.5 F

Date		21-JUN-88			
Run No.		ONE			
Depth Driller		1600.0 F			
Depth Logger (Schl.)		1600.0 F			
Btm. Log Interval		1554.0 F			
Top Log Interval		86.0 F			
Casing-Driller		@86.0 F		@	@
Casing-Logger		86.0 F			
Bit Size		20 1/2"			
Type Fluid in Hole		GEL-LIME			
Dens.	Visc.	8.60 LB/G	38.0 S		
pH	Fld. Loss	10.0	12.4 C3		
Source of Sample		FLOWLINE			
Rm @ Meas. Temp.		4.030 OHMM	@ 102. DEGF	@	
Rmf @ Meas. Temp.		6.200 OHMM	@ 68.0 DEGF	@	
Rmc @ Meas. Temp.		4.330 OHMM	@ 68.0 DEGF	@	
Source: Rmf	Rmc	MEASURED	MEASURED		
Rm @ BHT		3.514 OHMM	@ 118. DEGF	@	
TIME Circulation Ended		17:45 6-21			
TIME Logger on Bottom		20:42 6-21			
Max. Rec. Temp.		118. DEGF			
Equip.	Location	8504	SACRAMENTO		
Recorded By		SCOTT PILCH			
Witnessed By		ORVAN PICKETT			

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

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations made by any of our officers, agents or employees. These interpretations are also subject to Clause 4 of our General Terms and Conditions as set out in our current Price Schedule.

Schlumberger

DUAL INDUCTION

COUNTY MORROW
FIELD WILDCAT
LOCATION 1755'S AND 1414'W
WELL "ARCO HANNA" #1
COMPANY ARCO OIL AND GAS

COMPANY	ARCO OIL AND GAS
WELL	"ARCO HANNA" #1
FIELD	WILDCAT
COUNTY	MORROW **STATE** O

LOCATION	1755'S AND 1414'W FROM NE CORNER			
API SERIAL NO.		SECT. 23	TWP. 2S	RANGE 27E

Permanent Datum	GL	Elev.	3199.5 F
Log Measured From	KB	26.0 F	above Perm. Datum
Drilling Measured From	KB		

Date		04-AUG-88		
Run No.		TWO		
Depth Driller		7331.0 F		
Depth Logger (Schl.)		7244.0 F		
Btm. Log Interval		7238.0 F		
Top Log Interval		1598.0 F		
Casing-Driller		16	@1598.0 F	@
Casing-Logger		1598.0 F		
Bit Size		14 3/4		
Type Fluid in Hole		DRISPAC		
Dens.	Visc.	9.40 LB/G	48.0 S	
pH	Fld. Loss	10.0	6.1 C3	
Source of Sample		CIRCULATED		
Rm @ Meas. Temp.		7.490 OHMM	@ 78.0 DEGF	
Rmf @ Meas. Temp.		4.010 OHMM	@ 78.0 DEGF	
Rmc @ Meas. Temp.		3.090 OHMM	@ 72.0 DEGF	
Source: Rmf	Rmc	MEASURED	MEASURED	
Rm @ BHT		3.857 OHMM	@ 160. DEGF	
TIME Circulation Ended		07:00 4 AUG		
TIME Logger on Bottom		16:00 4 AUG		
Max. Rec. Temp.		160. DEGF		
Equip.	Location	8504	SACRAMENTO	
Recorded By		DAVID ROTHERS		
Witnessed By		FRANK MARTIN JR.		

- SFL

REGON

Other Services:
DIL-BHC-GR
FDC-CNL-GR
SHDT

Elev.: K.B.3225.5 F
D.F.3224.5 F
G.L.3199.5 F

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Schlumberger

DUAL INDUCTION - SFL

COUNTY	MORROW
FIELD	WILDCAT
LOCATION	1755'S AND 1414'W
WELL	"ARCO HANNA" #1
COMPANY	ARCO OIL AND GAS

COMPANY ARCO OIL AND GAS

WELL "ARCO HANNA" #1

FIELD WILDCAT

COUNTY MORROW **STATE** OREGON

LOCATION	1755'S AND 1414'W FROM NE CORNER			
	API SERIAL NO.	SECT.	TWP.	RANGE
	049-00002	23	2S	27E

Other Services:
DIL GR
FDC-CNL-GR

Permanent Datum	GL	Elev.	3199.5 F
Log Measured From	KB	26.0 F	above Perm. Datum
Drilling Measured From	KB		

Elev.: K.B.3225.5 F
D.F.3224.5 F
G.L.3199.5 F

Date	24-AUG-88			
Run No.	THREE			
Depth Driller	9211.0 F			
Depth Logger (Schl.)	9213.0 F			
Btm. Log Interval	9207.0 F			
Top Log Interval	7276.0 F			
Casing-Driller	13 3/8"	@7285.0 F	@	@
Casing-Logger	7276.0 F			
Bit Size	12 1/4"			
Type Fluid in Hole	POLYACRYLAMIDE			
Dens. / Visc.	8.70 LB/G	42.0 S		
pH / Fld. Loss	10.7	6.2 C3		
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	2.190 OHMM	@ 83.0 DEGF	@	
Rmf @ Meas. Temp.	2.610 OHMM	@ 73.0 DEGF	@	
Rmc @ Meas. Temp.	1.930 OHMM	@ 73.0 DEGF	@	
Source: Rmf / Rmc	MEASURED	MEASURED		
Rm @ BHT	1.089 OHMM	@ 174. DEGF	@	
TIME Circulation Ended	08:50 8-24			
TIME Logger on Bottom	15:22 8-24			
Max. Rec. Temp.	174. DEGF			
Equip. / Location	8604	SACRAMENTO		
Recorded By	SCOTT PILCH			
Witnessed By	MARC KAMERLING			

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Run No.	ONE		
Service Order No.	526308		
Drilling Fluid Level	0.0 F		
Salinity	200.0 PPM		
Rmf @ BHT	3.720 OHMM	@ 118. DEGF	@
Rmc @ BHT	2.598 OHMM	@ 118. DEGF	@
Logging Speed	3600.0 F/HR		

EQUIPMENT DATA		
Tool Number 1	DIS-EC 2179	
Tool Number 2	DIC-DA 2230	
Tool Number 3	SGC-JC 3270	
Tool Number 4	IEM-BD 304	
Tool Number 5	NLM-BC 418	
Tool Number 6		
Tool Number 7		
Tool Number 8		
Tool Number 9		
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

2.5" STAND OFF USED ON DUAL INDUCTION.

MEDIUM AND DEEP BEING AFFECTED BY LARGE BOREHOLE SIGNAL

Run No.	TWO	
Service Order No.	527488	
Drilling Fluid Level	0.0 F	
Salinity	300.0 PPM	
Rmf @ BHT	1.921 OHMM @ 160. DEGF	@
Rmc @ BHT	1.433 OHMM @ 160. DEGF	@
Logging Speed	3000.0 F/HR	
EQUIPMENT DATA		
Tool Number 1	DIS-EC 2179	
Tool Number 2	DIC-DA 2230	
Tool Number 3	MCD-DA 1237	
Tool Number 4	SLS-RC 428	
Tool Number 5	SLC-FA 1424	
Tool Number 6	SGC-JC 3231	
Tool Number 7	IEM-BD 232	
Tool Number 8	SLM-DA 443	
Tool Number 9	MLN-BC 418	
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

1.5" STANDOFFS USED ON DUAL INDUCTION

DRILLERS DEPTH NOT REACHED DUE TO HOLE SLOUGHING

DEEP AND MEDIUM INDUCTION BEING AFFECTED BY HOLE SIZE

Run No.	THREE	
Service Order No.	527576	
Drilling Fluid Level	0.0 F	
Salinity	300.0 PPM	
Rmf @ BHT	1.154 OHMM @ 174. DEGF	@
Rmc @ BHT	.853 OHMM @ 174. DEGF	@
Logging Speed	3600.0 F/HR	

EQUIPMENT DATA		
Tool Number 1	DIS-EC 2179	
Tool Number 2	DIC-DA 2230	
Tool Number 3	MCD-DA 1237	
Tool Number 4	SLS-RC 252	
Tool Number 5	SLC-FA 1821	
Tool Number 6	SGC-JC 3207	
Tool Number 7	IEM-BD 232	
Tool Number 8	SLM-DA 443	
Tool Number 9	NLM-BC 418	
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

1.5 INCH STANDOFF USED ON INDUCTION.

INDUCTION AND SONIC RUN IN COMBINATION.

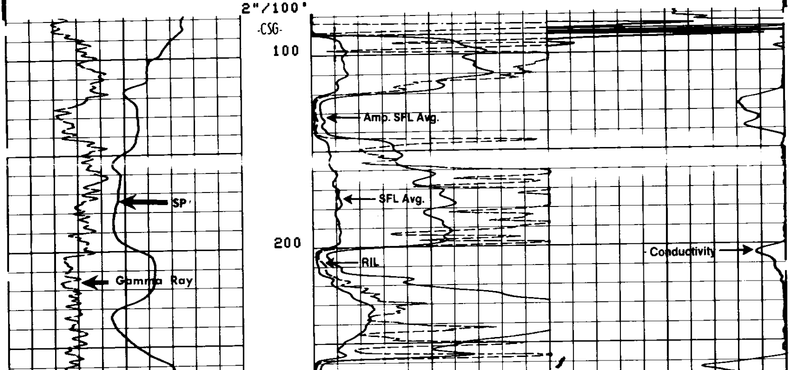
MAXIMUM READING THERMOMETERS: T1=174, T2=174.

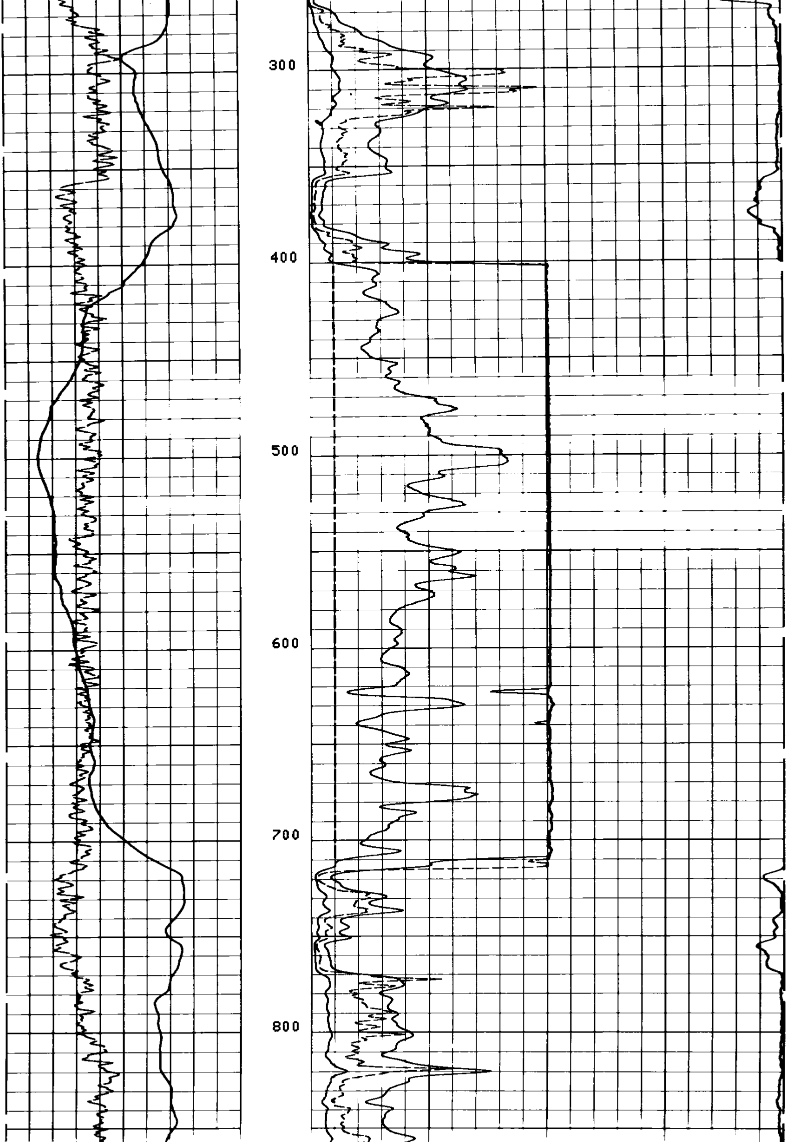
GR (GAPI) 0.0 100.00 SP (MV) -400.0 0.0		ILD (OHMM) 0.0 2000.0 SFLA(OHMM) 0.0 400.00 SFLA(OHMM) 0.0 2000.0	CILD(MMHO) 200.00 0.0

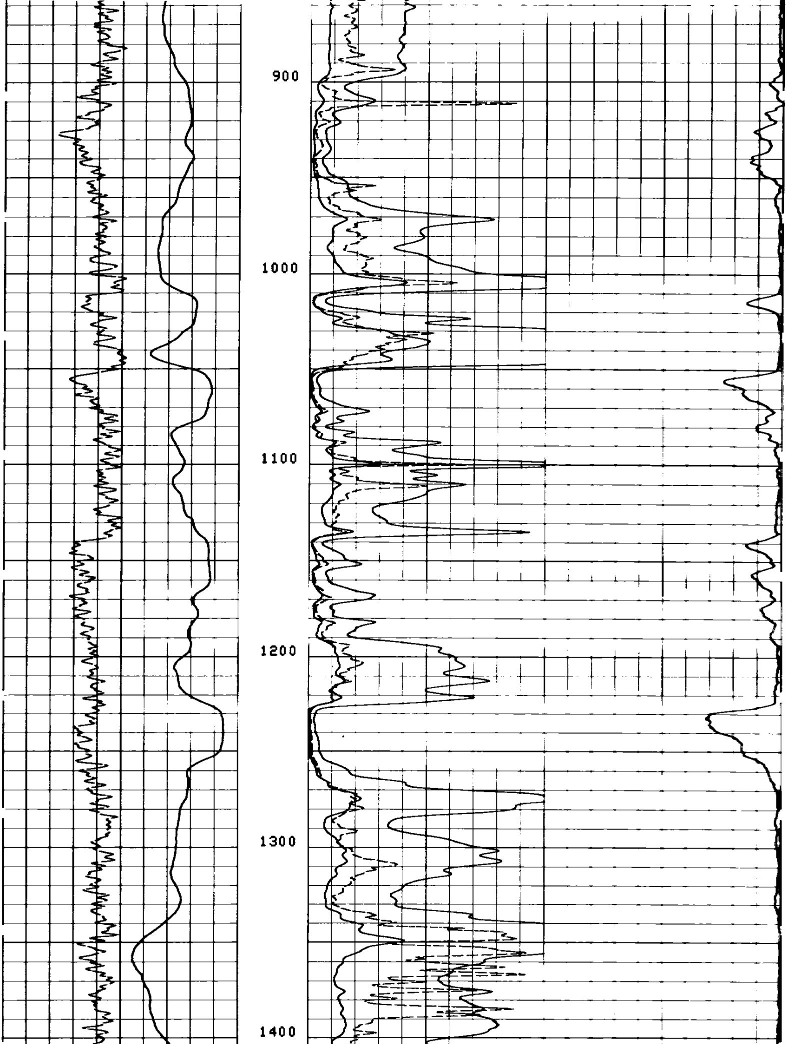
CP 30.4 FILE 9 21-JUN-88 21:23

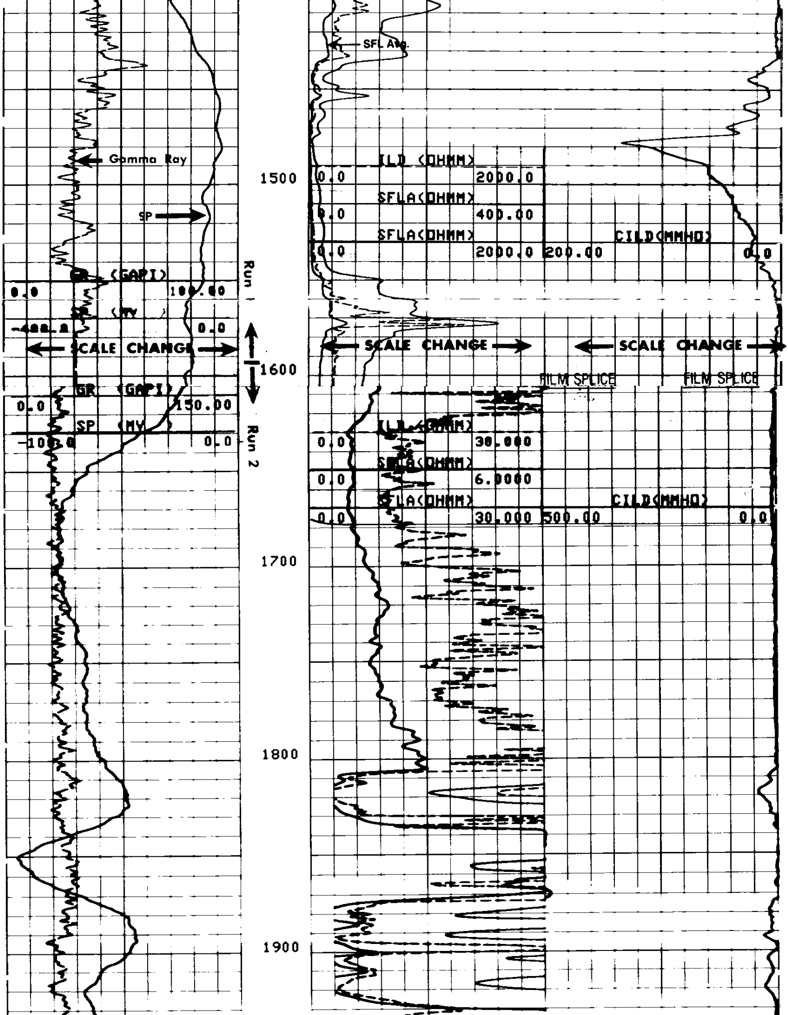
INPUT FILES
4

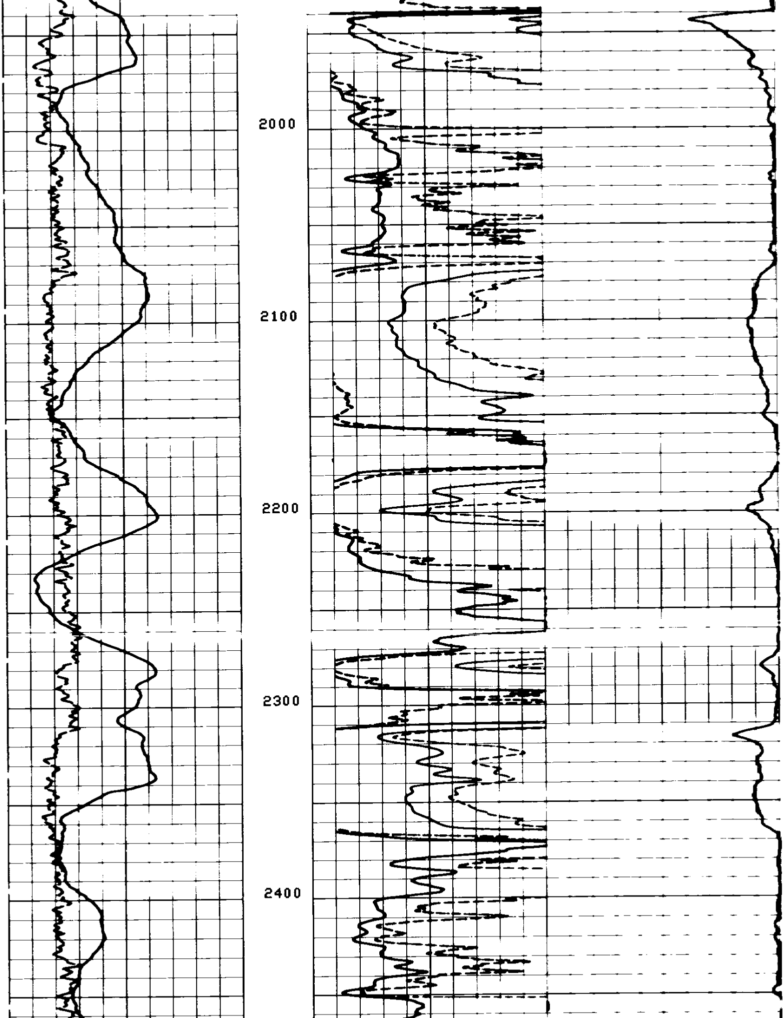
DATA ACQUIRED
21-JUN-88 21:06

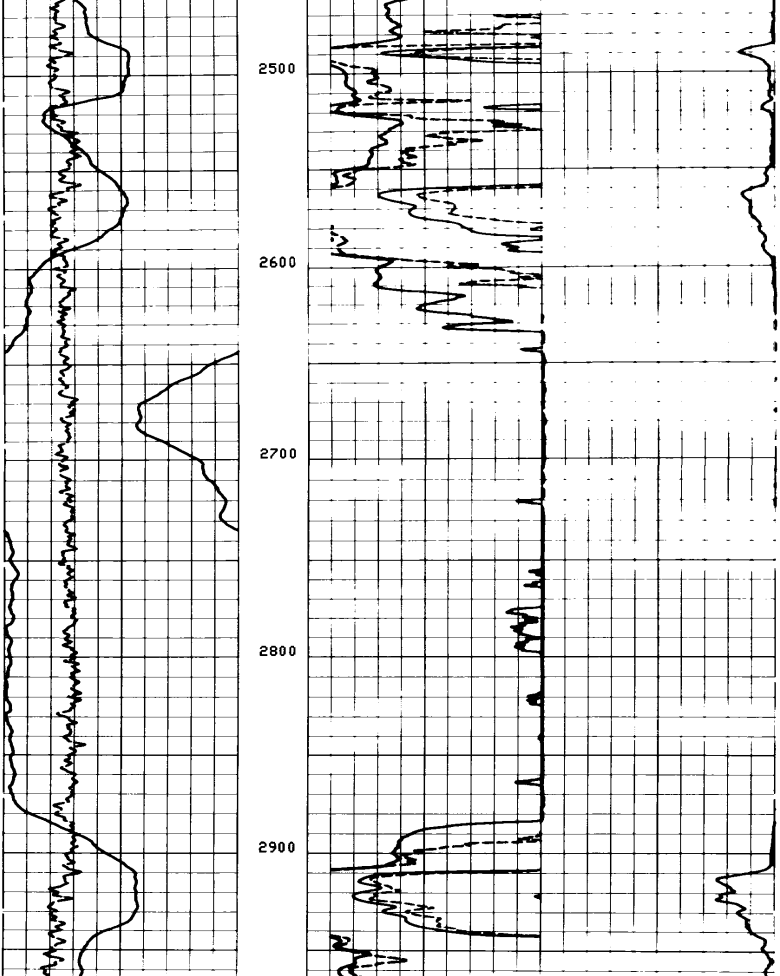


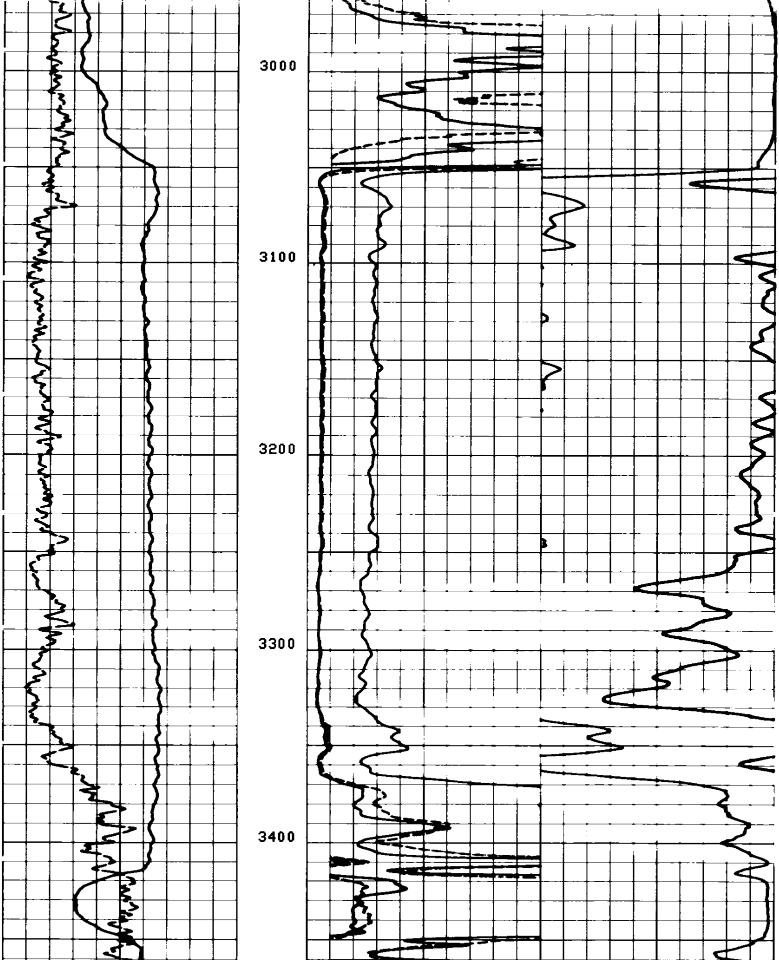


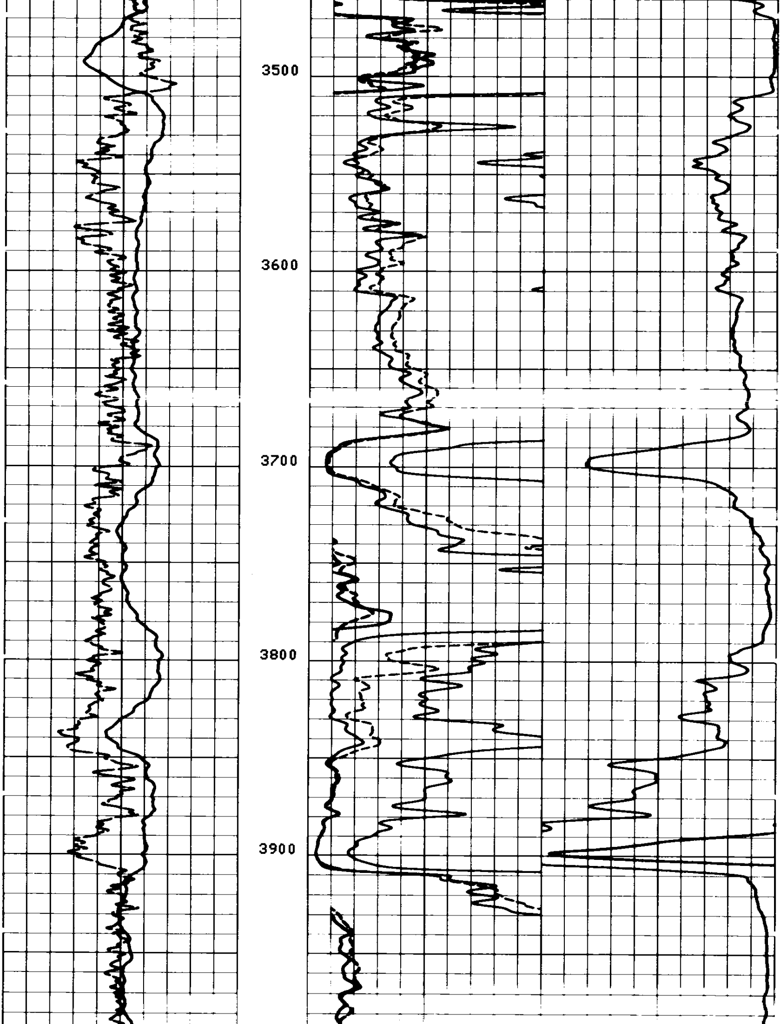


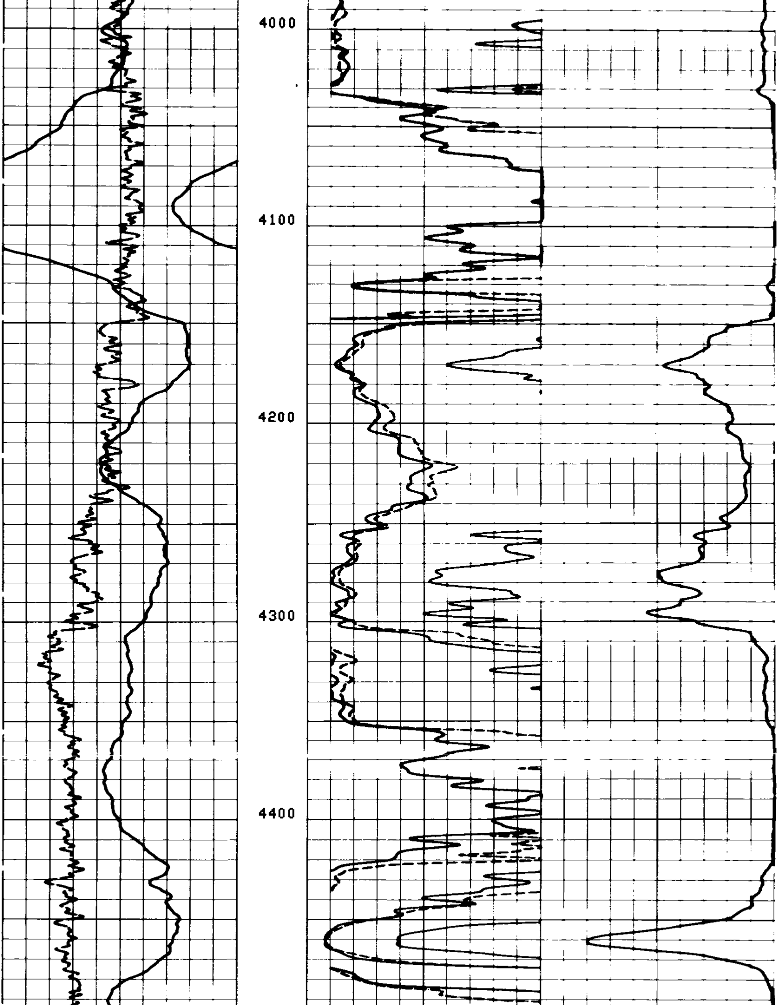


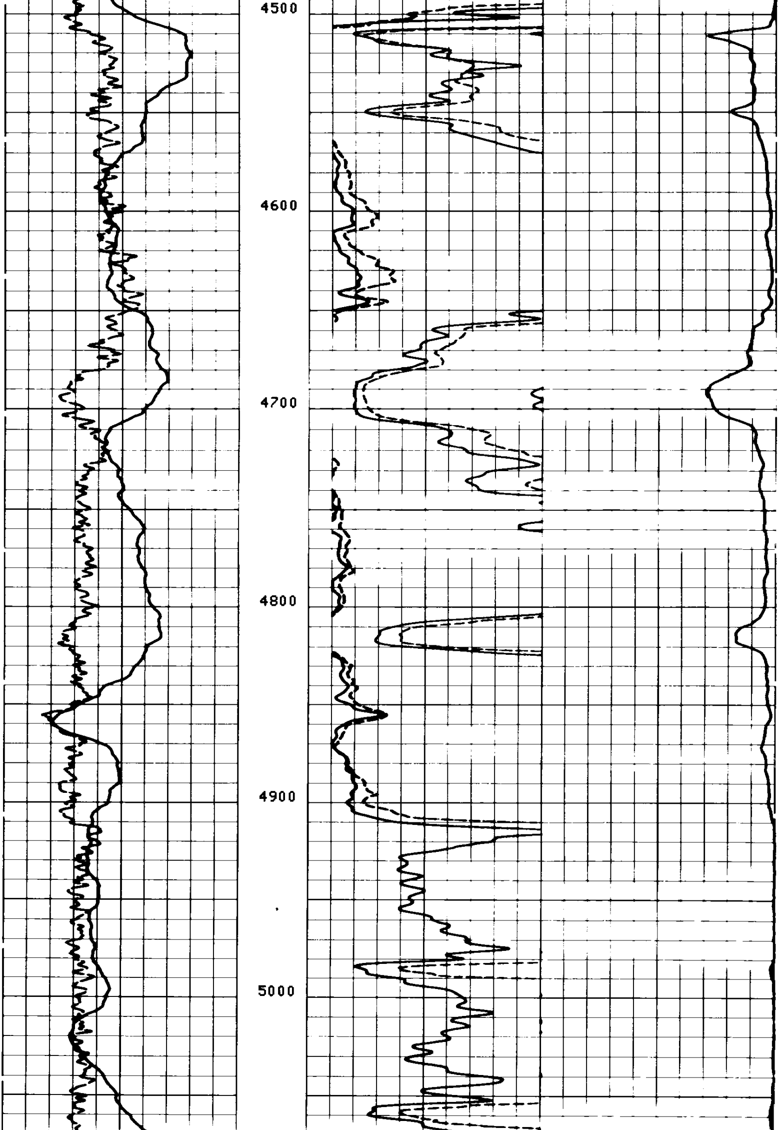


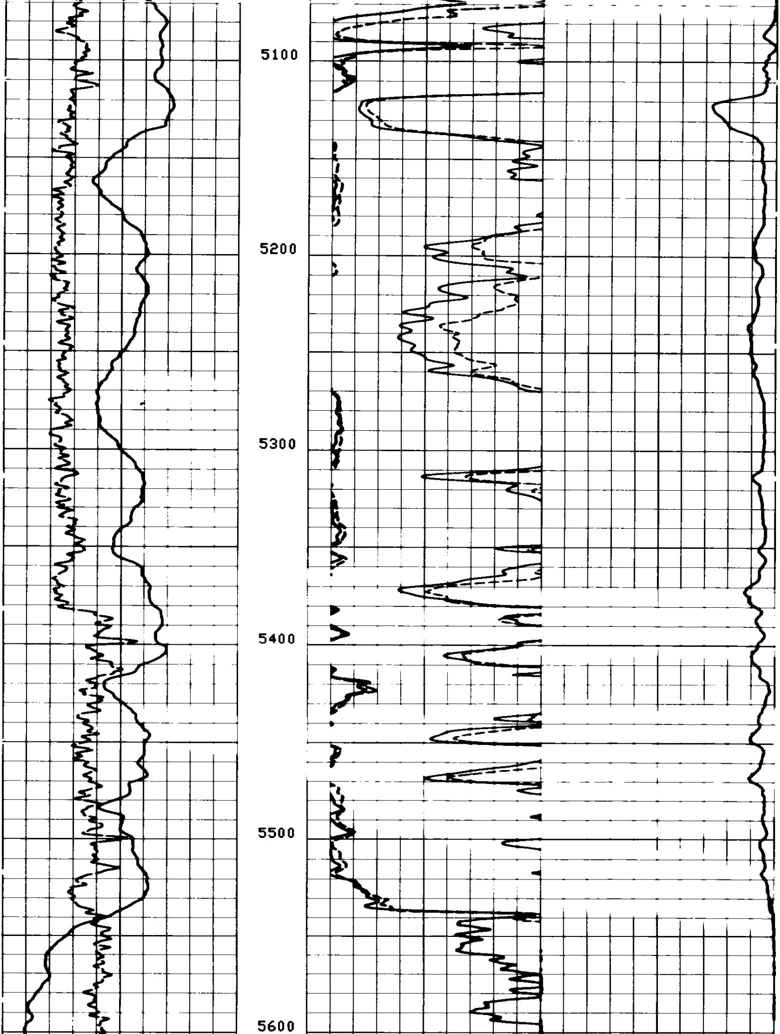


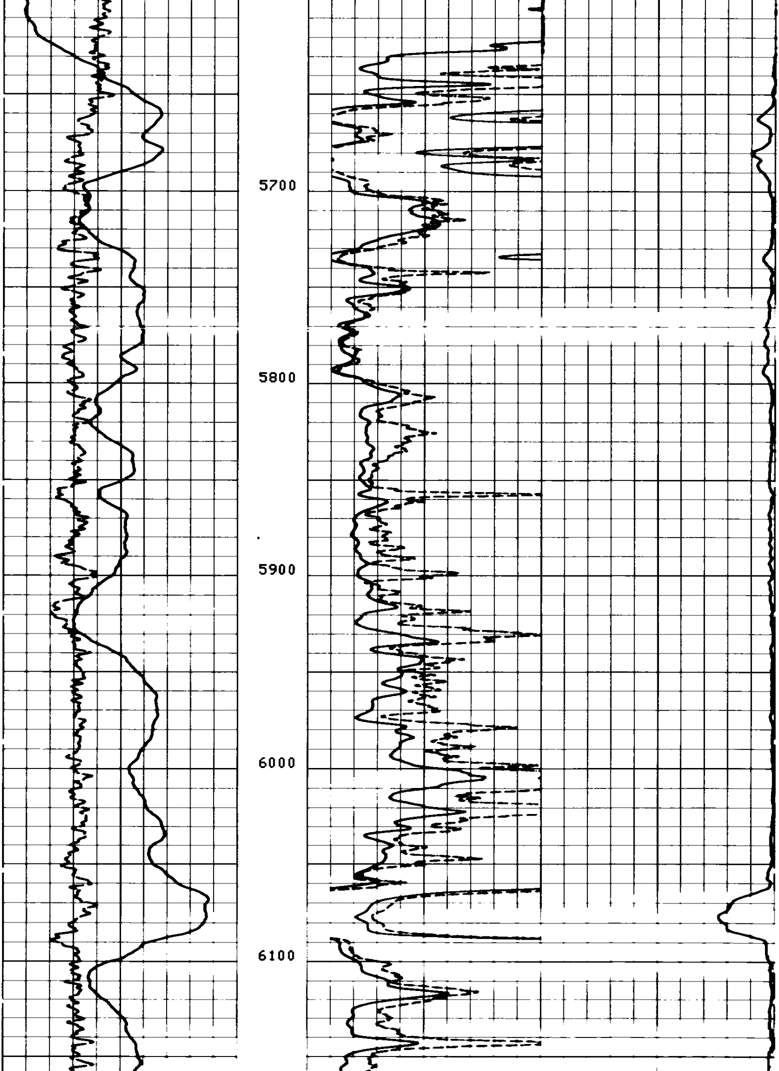


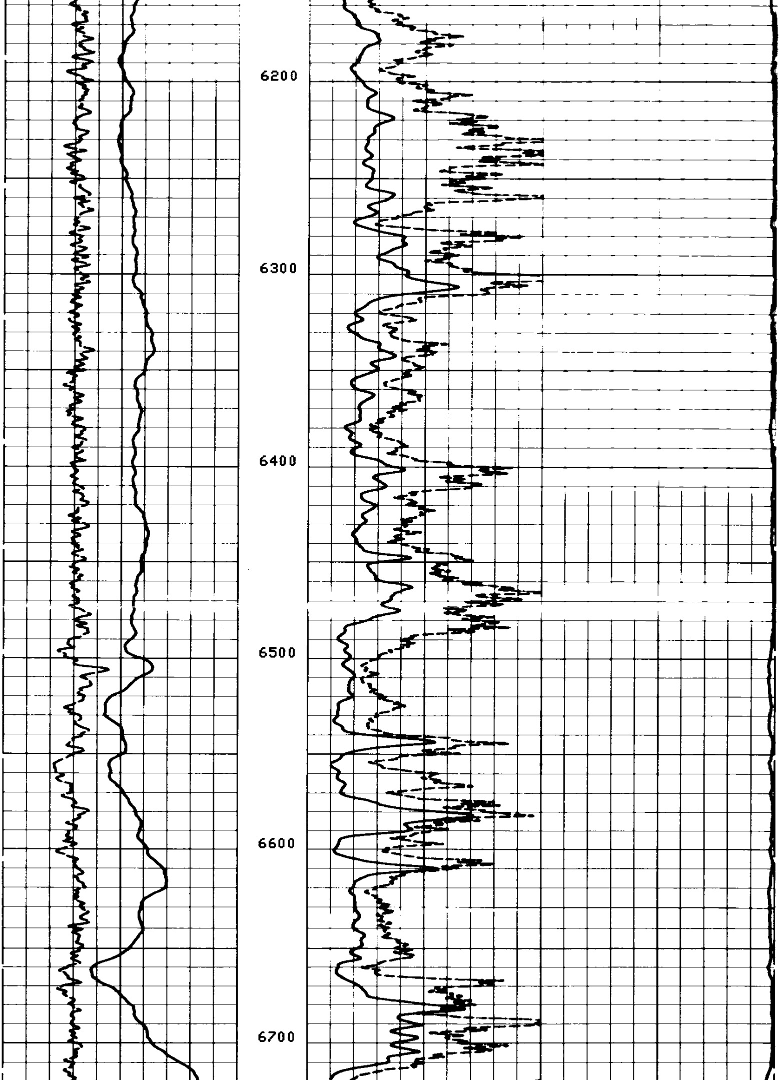


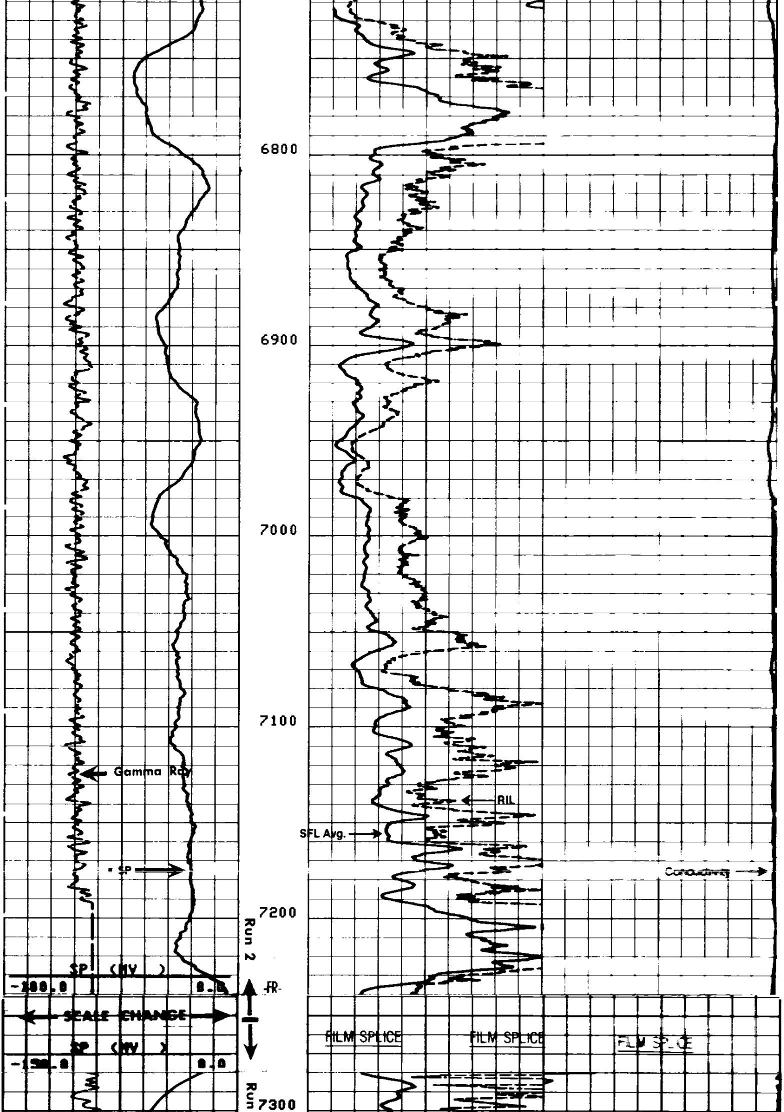


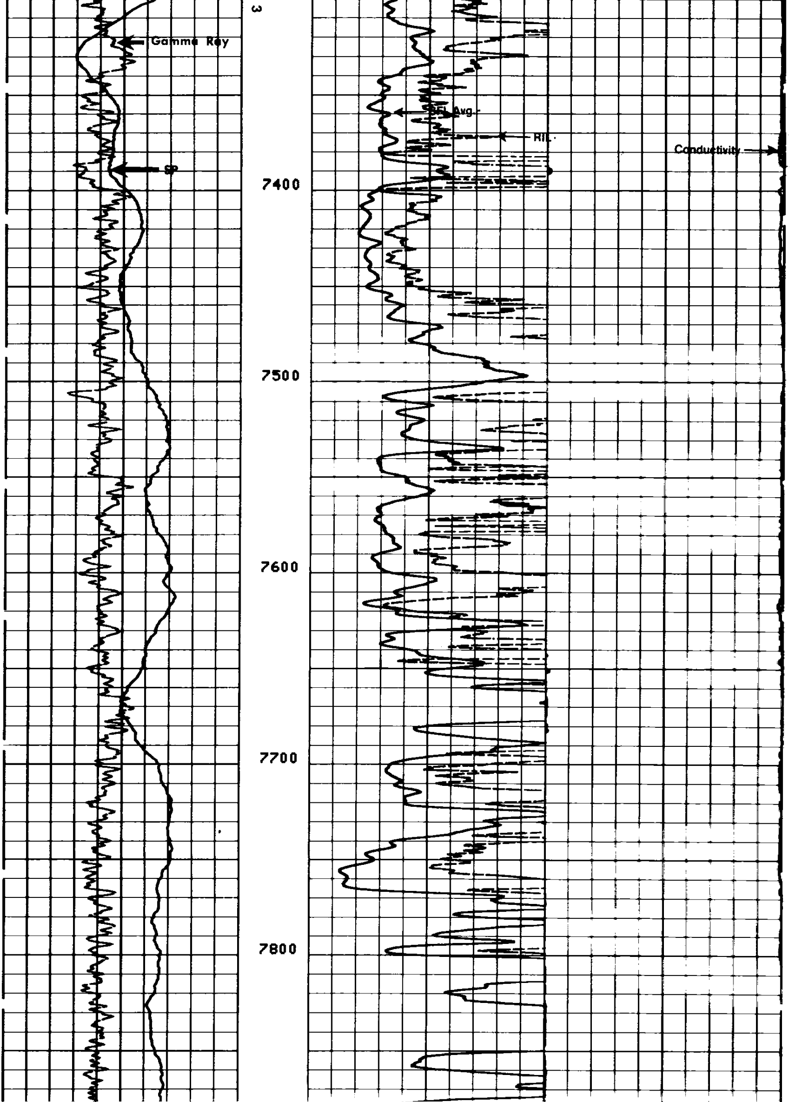


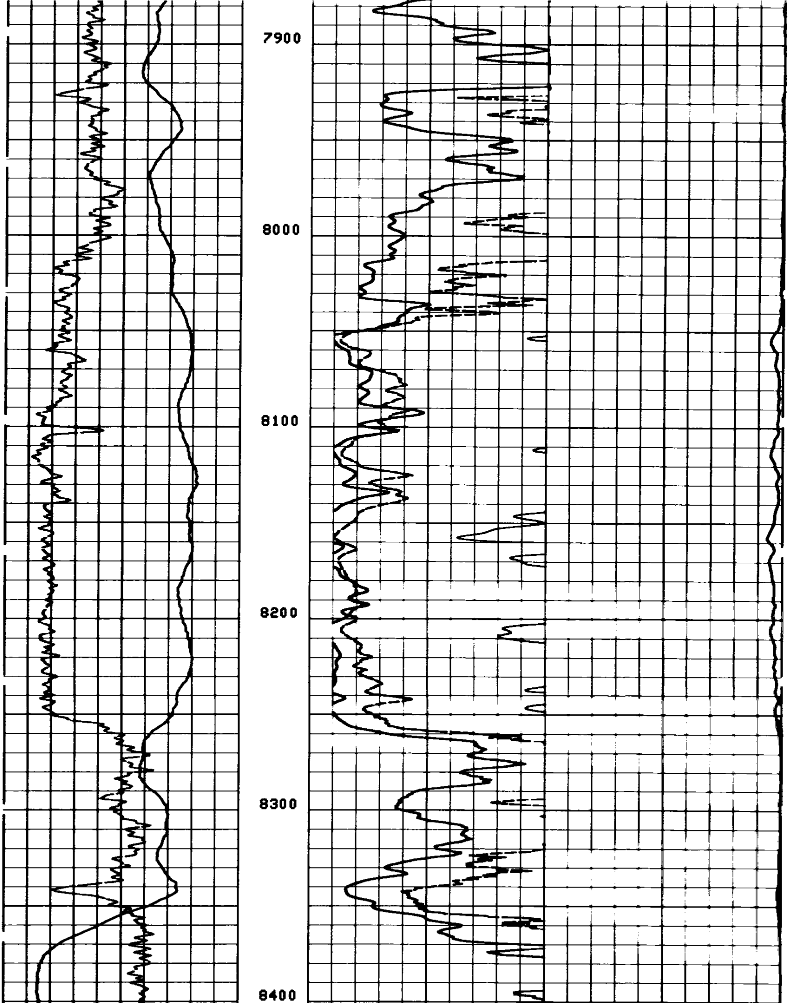


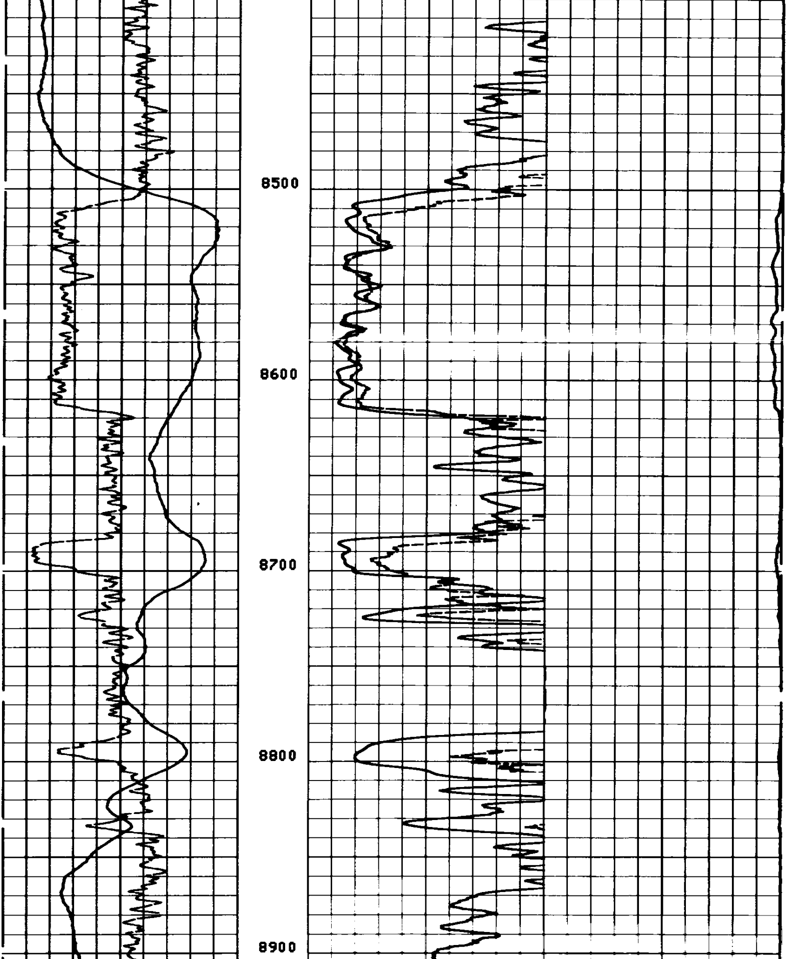


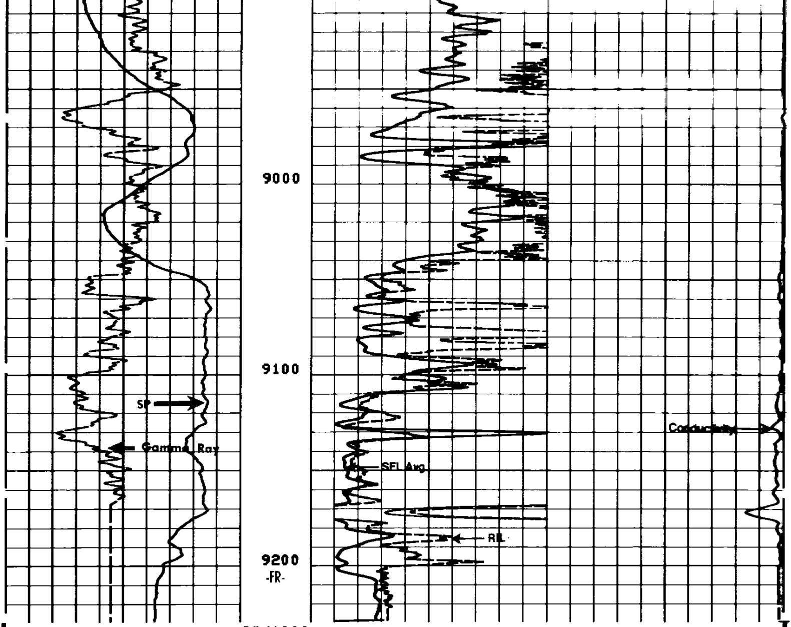












2"/100'

CP 30.4 FILE 13 24-AUG-88 16:40

INPUT FILES
6

DATA ACQUIRED
24-AUG-88 15:22

GR (GAPI) 0.0 150.00		ILD (OHMM) 0.0 30.000	
SP (MV) -150.0 0.0		SFLA(OHMM) 0.0 6.0000	
		SFLA(OHMM) 0.0 30.000	CILD(MMHO) 500.00 0.0

SENSOR MEASURE POINT TO TOOL ZERO

SRAT	41.4	FEET	AMPL	43.8	FEET
CBL5	42.8	FEET	CBL	43.8	FEET
TT2	43.8	FEET	TT1	42.8	FEET
TT4	39.1	FEET	TT3	40.1	FEET
TT	43.8	FEET	T0	43.8	FEET
CBSL	43.8	FEET	TTSL	43.8	FEET
CALI	31.8	FEET	GR	64.1	FEET
ILM	5.8	FEET	ILD	9.4	FEET
SP	2.5	FEET	SFL	6.4	FEET
TENS	2.5	FEET	SPAR	2.5	FEET
NOIS	2.5	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	12.2500	IN	BHS	OPEN	
SPFS	R-H		FPHI	SPHI	
DTM	56.0000	US/F	CDTS	100.000	
DDEL	200	US	DTF	189.000	US/F
DWCO	512		DSIN	5	US
SBR	1.00000	OHMM	DSEC	2.20000	MMHO
WMUD	8.70000	LB/G	MSEC	7.10000	MMHO
PP	NORM		DO	-77.0000	F