2"

Schlumberger

BOREHOLE COMPENSATED
SONIC 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:** DIL-BHC-GR FDC-CNL-GR SHDT
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	04-AUG-88			
Run No.	1			
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	@ 79.0 DEGF	@	
Rmf @ Meas. Temp.	4.010 OHMM	@ 73.0 DEGF	@	
Rmc @ Meas. Temp.	3.030 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.			

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.

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SONIC 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:** DIL GR FDC-CNL-GR
API SERIAL NO. 049-00002		**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	24-AUG-88			
Run No.	2			
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	18:22 8-24			
Max. Rec. Temp.	174. DEGF			
Equip. | Location	8504	SACRAMENTO		
Recorded By	SCOTT PILCH			
Witnessed By	MARC KAMERLING			

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Run No.	1	
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

Run No.	2	
Service Order No.	527575	
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 1321	
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.

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CEMENT VOLUME = 235.088 F3
HOLE VOLUME =    5736.40 F3
FROM  7240.0 TO   1598.0 FEET
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CALI(IN)		TENS(LB)
12.000 22.000		10000. 0.0
GR (GAPI)		DT (US/F)
0.0 150.00		150.00 50.000

CP 30.4 FILE 11 05-NOV-88 09:30

INPUT FILES
5

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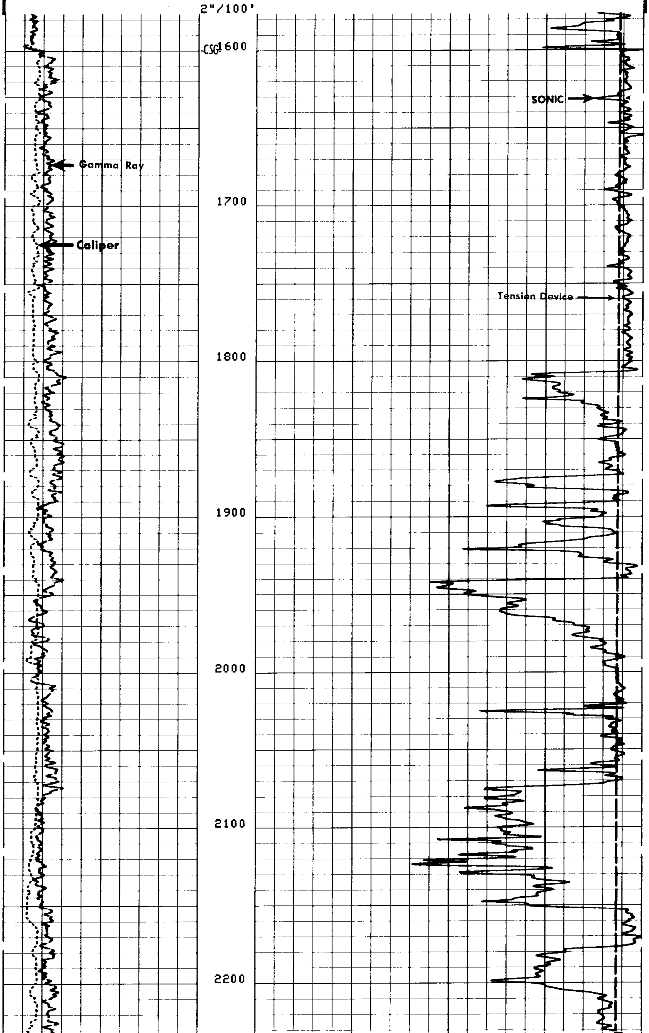
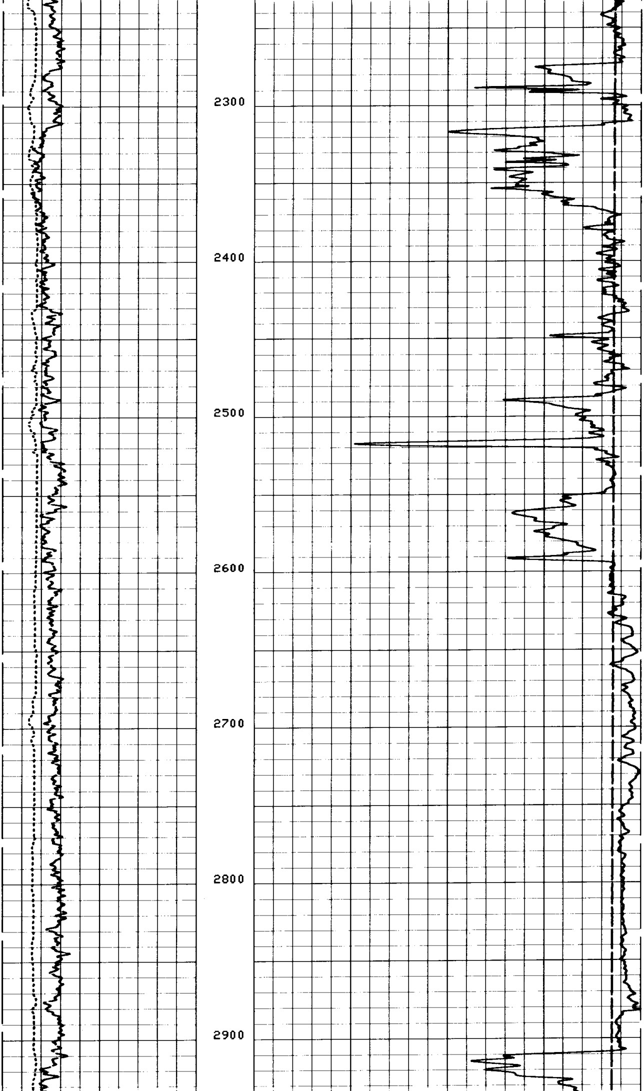
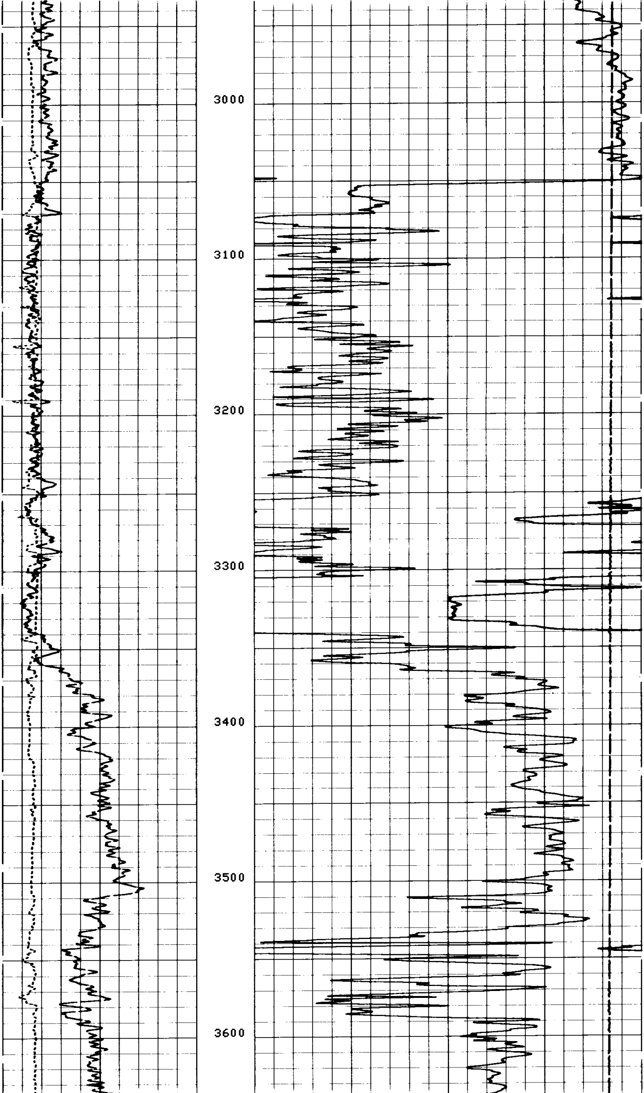
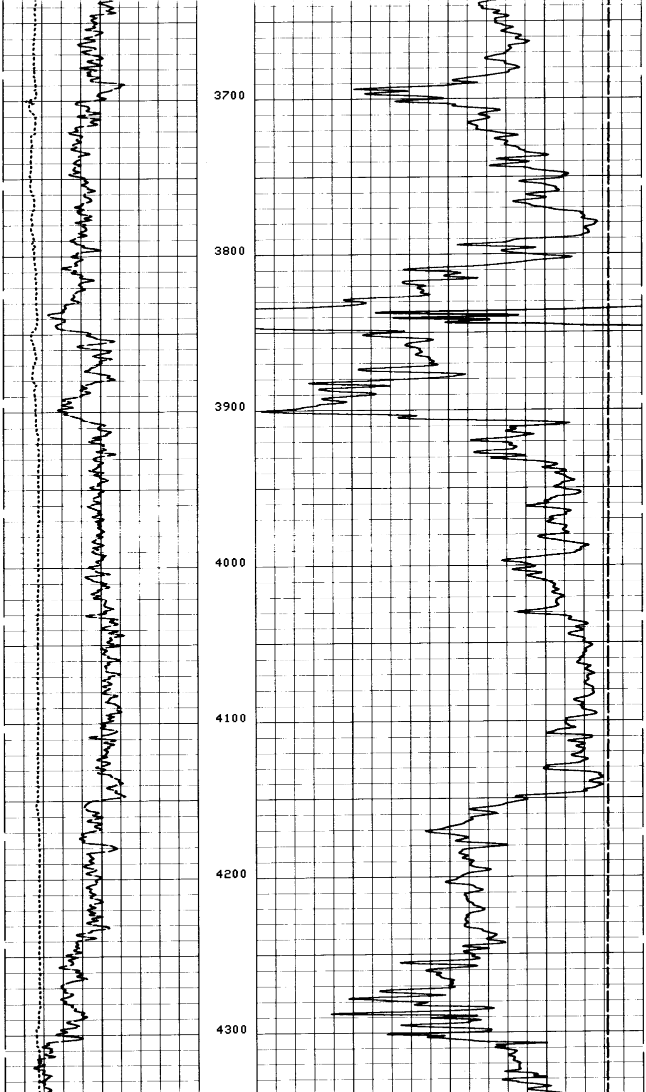
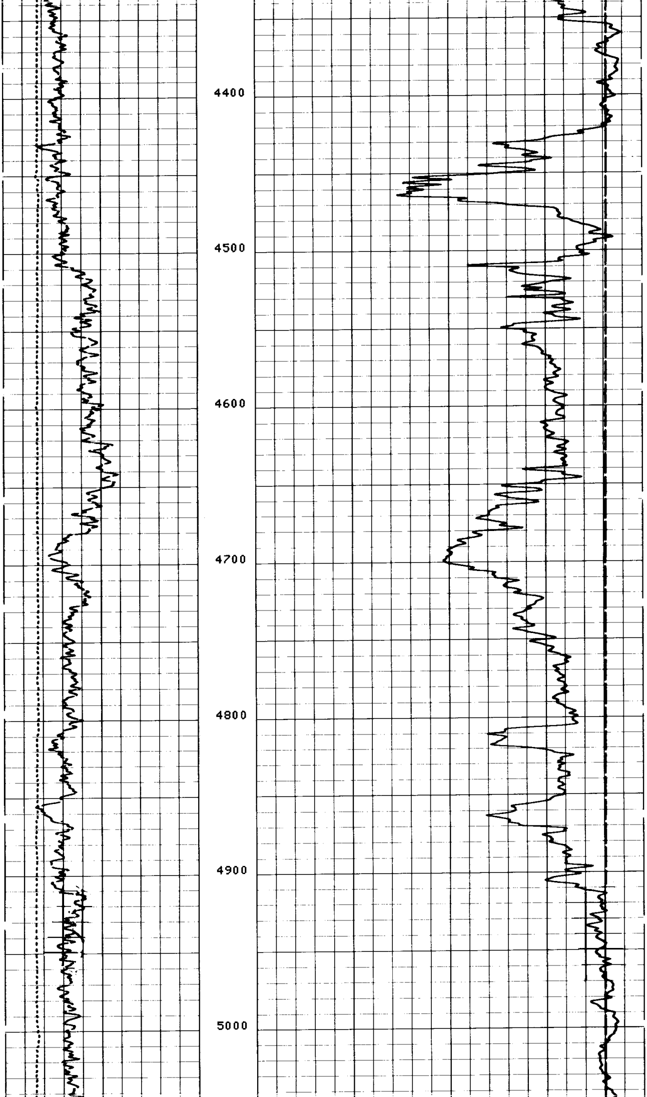
04-AUG-88 17:30

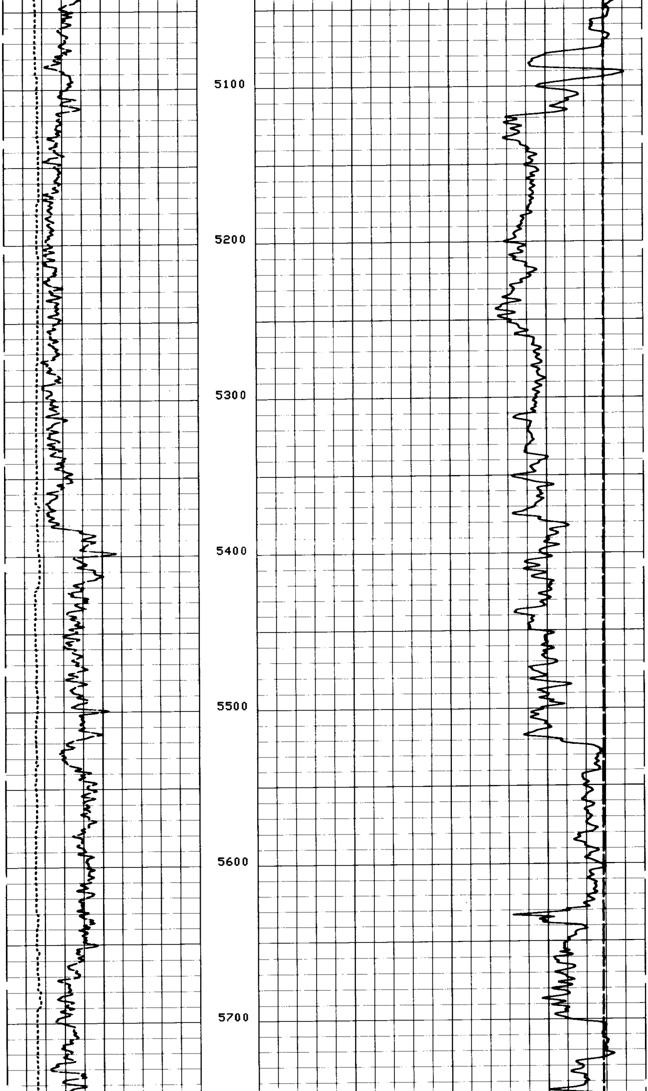


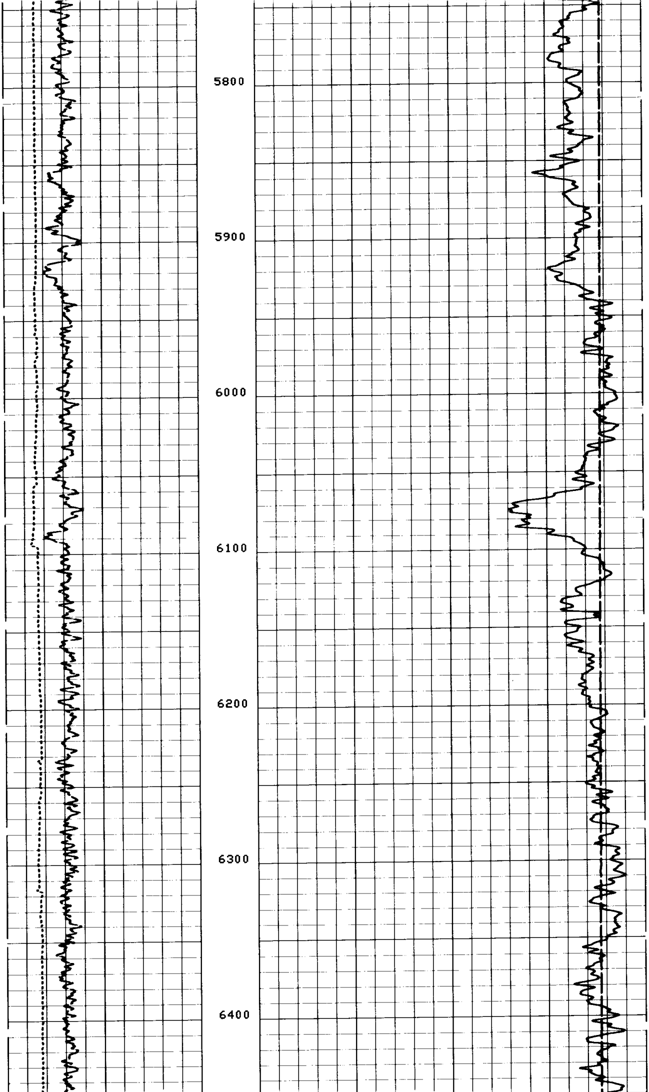


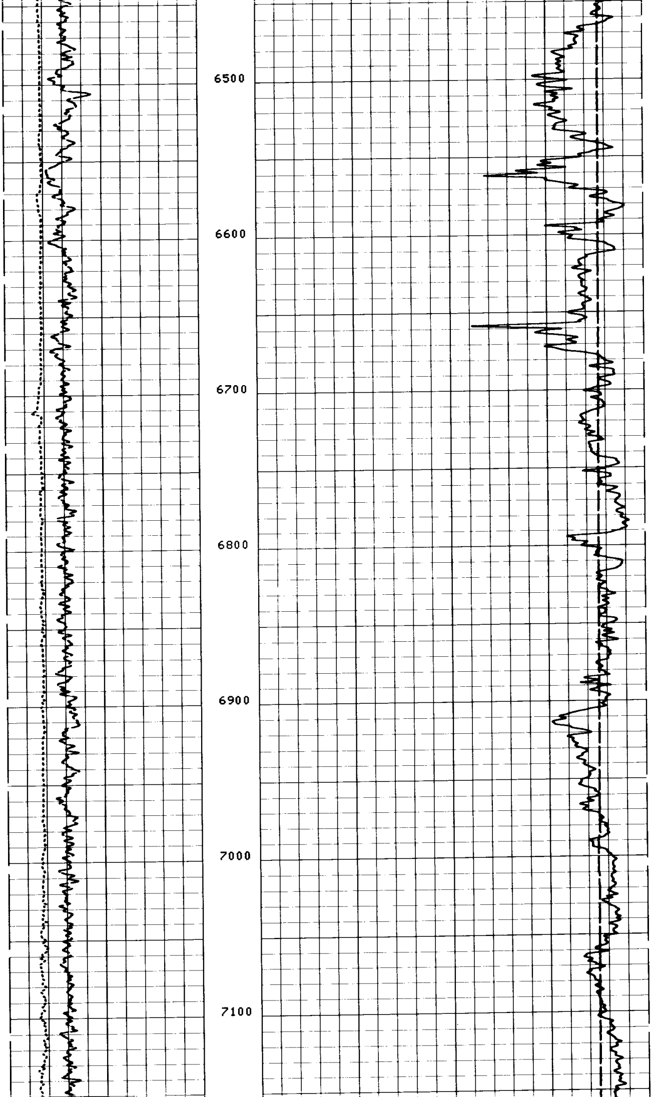


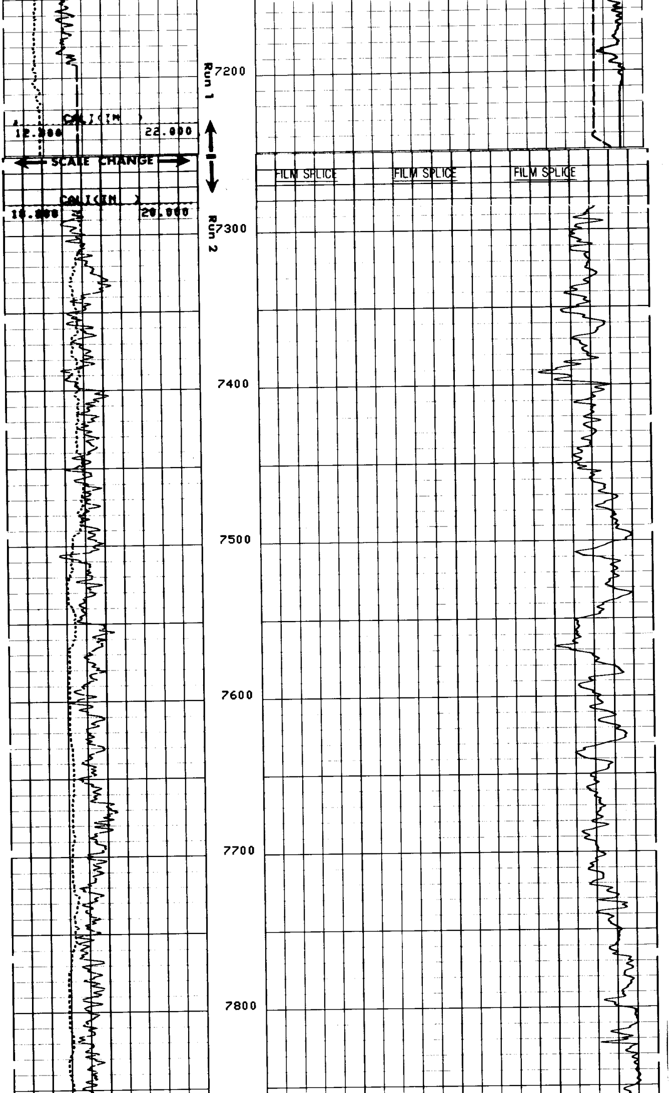


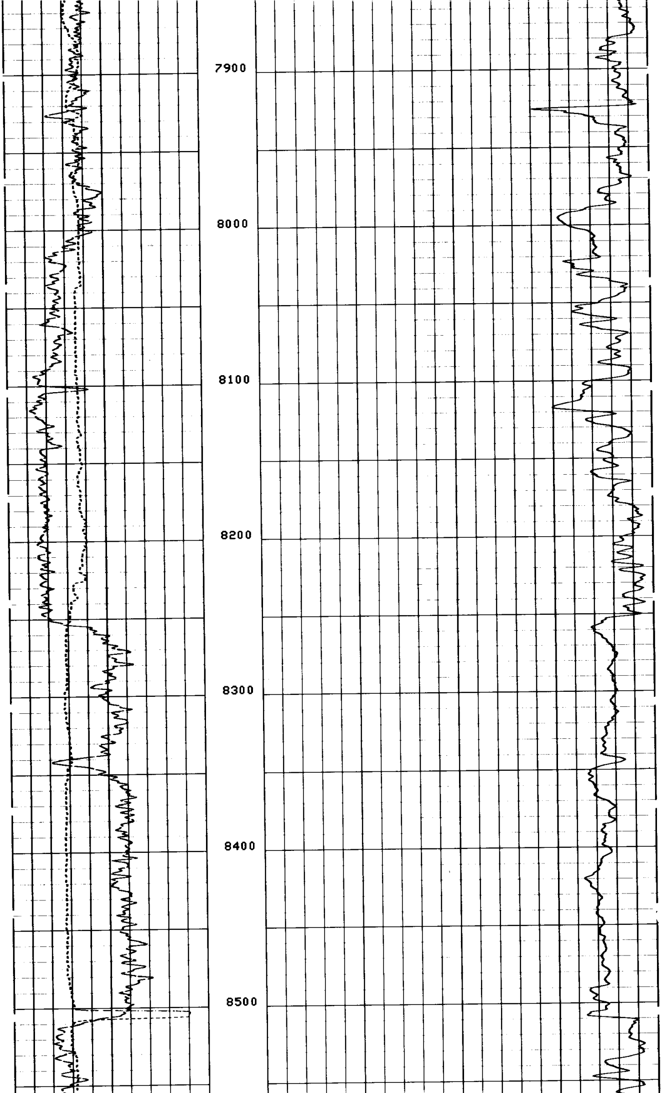


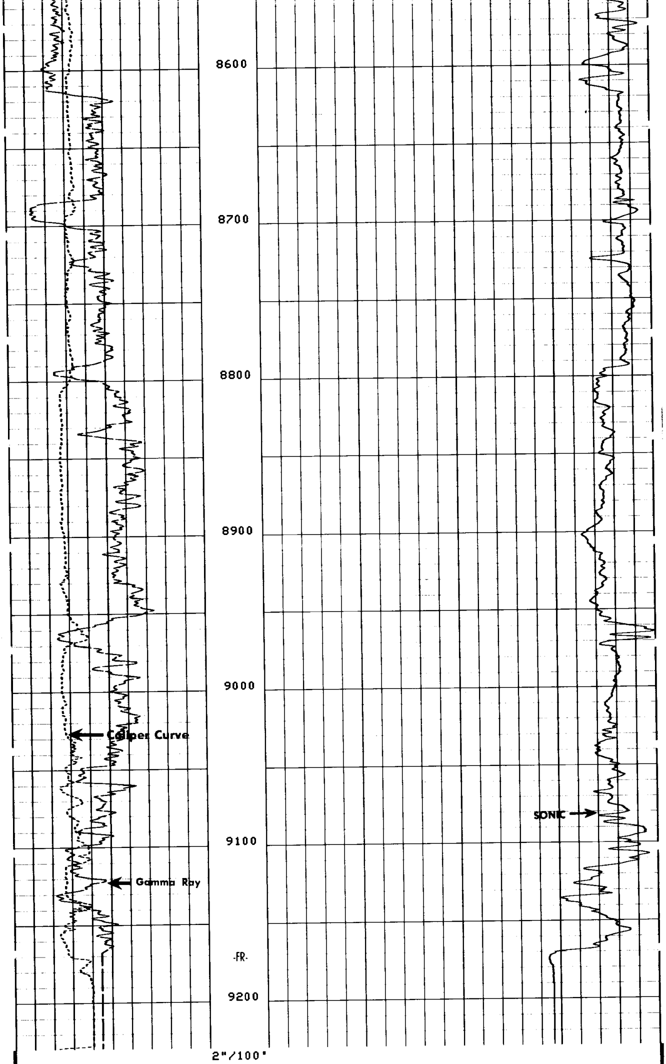












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INPUT FILES
2

DATA ACQUIRED
24-AUG-88 15:22

CALI(IN)			DT (US/F)	
10.000	20.000			
GR (GAPI)				
0.0	150.00		150.00	50.000

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	0.0	F

DATA NOT RECORDED