2"

Schlumberger

BULK DENSITY

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	03-AUG-88			
Run No.	1			
Depth Driller	7331.0 F			
Depth Logger (Schl.)	7244.0 F			
Btm. Log Interval	7241.0 F			
Top Log Interval	1598.0 F			
Casing-Driller	16 @1598.0 F	@	@	
Casing-Logger	1598.0 F			
Bit Size	13 3/8			
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	3.723 OHMM	@ 166. DEGF	@	
TIME Circulation Ended	07:00 4 AUG			
TIME Logger on Bottom	19:34 4 AUG			
Max. Rec. Temp.	166. 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.

Schlumberger

BULK DENSITY

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
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	9210.0 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	1.054 OHMM	@ 180. DEGF	@	
TIME Circulation Ended	08:50 8-24			
TIME Logger on Bottom	18:26 8-24			
Max. Rec. Temp.	180. 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	50.0 PPM	
Rmf @ BHT	1.854 OHMM @ 166. DEGF	@
Rmc @ BHT	1.384 OHMM @ 166. DEGF	@
Logging Speed	1800.0 F/HR	
EQUIPMENT DATA		
Tool Number 1	PGS 86	
Tool Number 2	CNC 2359	
Tool Number 3	SGC 581	
Tool Number 4	NLM 418	
Tool Number 5		
Tool Number 6		
Tool Number 7		
Tool Number 8		
Tool Number 9		
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

Run No.	2	
Service Order No.	527575	
Drilling Fluid Level	0.0 F	
Salinity	300.0 PPM	
Rmf @ BHT	1.117 OHMM @ 180. DEGF	@
Rmc @ BHT	.826 OHMM @ 180. DEGF	@
Logging Speed	1800.0 F/HR	
EQUIPMENT DATA		
Tool Number 1	PGS-HB 86	
Tool Number 2	CNC-A 2359	
Tool Number 3	SGC-JC 581	
Tool Number 4	PGC-JA 433	
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:

MAXIMUM RECORDING THERMOMETERS: T1=180, T2=180.

CNL BOWSPRING USED

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CEMENT VOLUME = 4068.91 F3
HOLE VOLUME =    9601.22 F3
FROM  7270.5 TO  1598.0 FEET
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CALI(IN)			DRHO(G/C3)
10.000	20.000		-.2500 .25000
GR (GAPI)			RHOB(G/C3)
0.0	150.00		2.0000 3.0000

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CP 30.4            FILE    2       06-NOV-88 10:29

          INPUT FILES              DATA ACQUIRED
          3                        04-AUG-88 22:28
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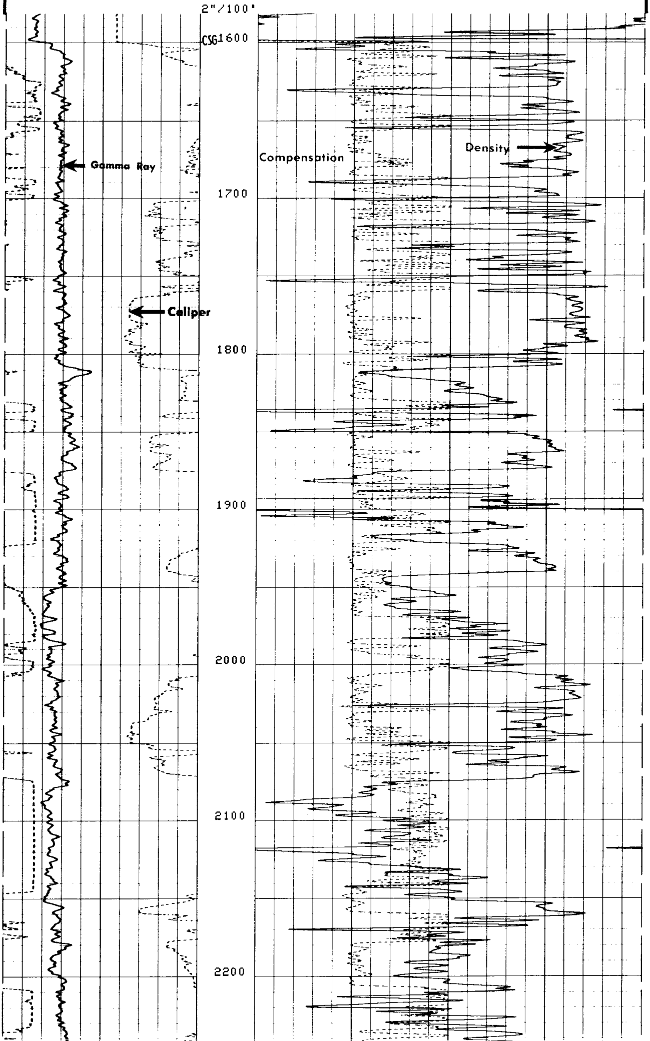

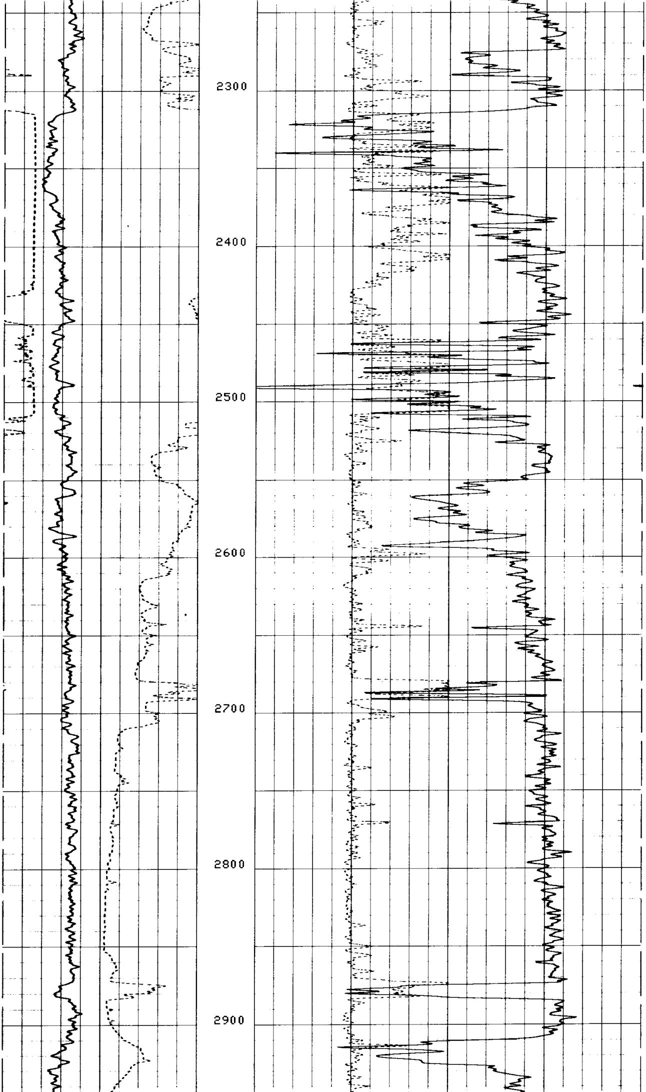

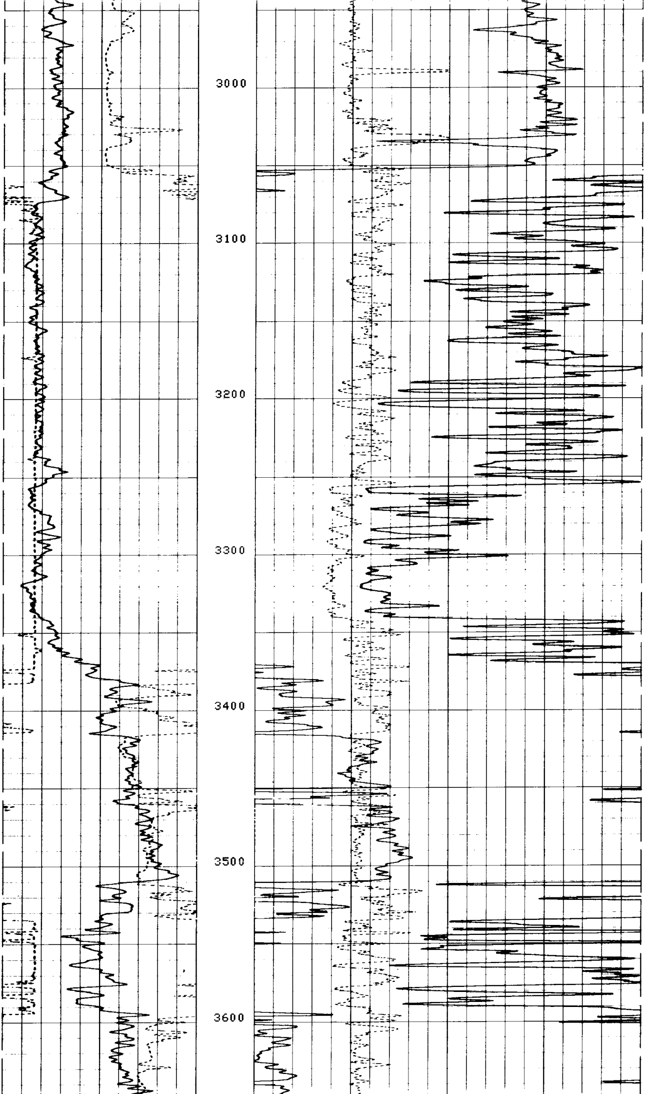

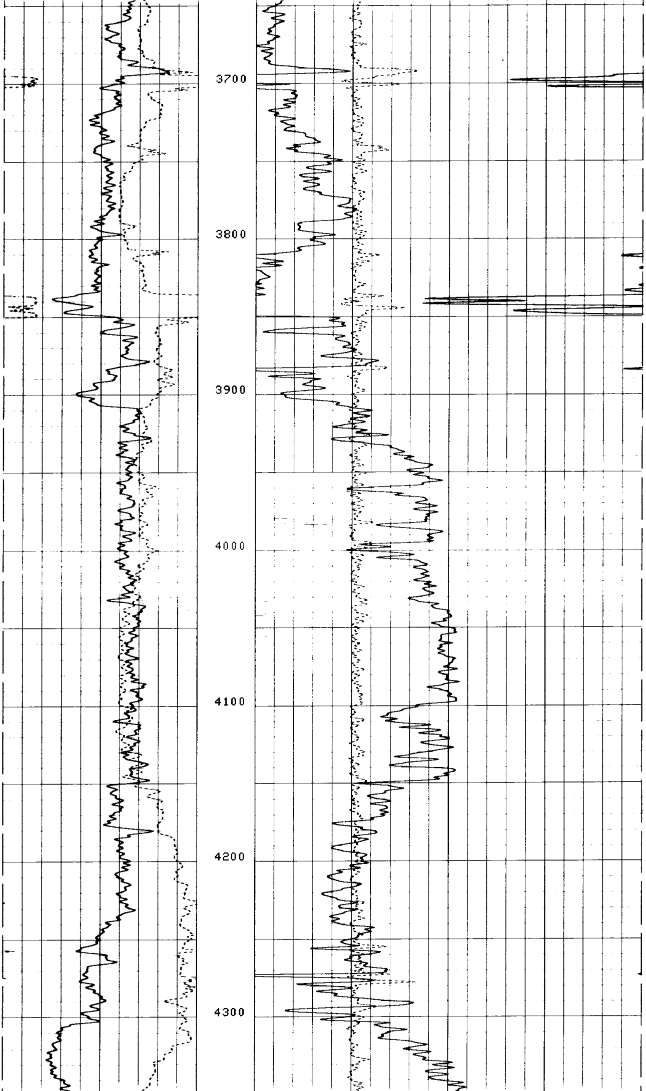

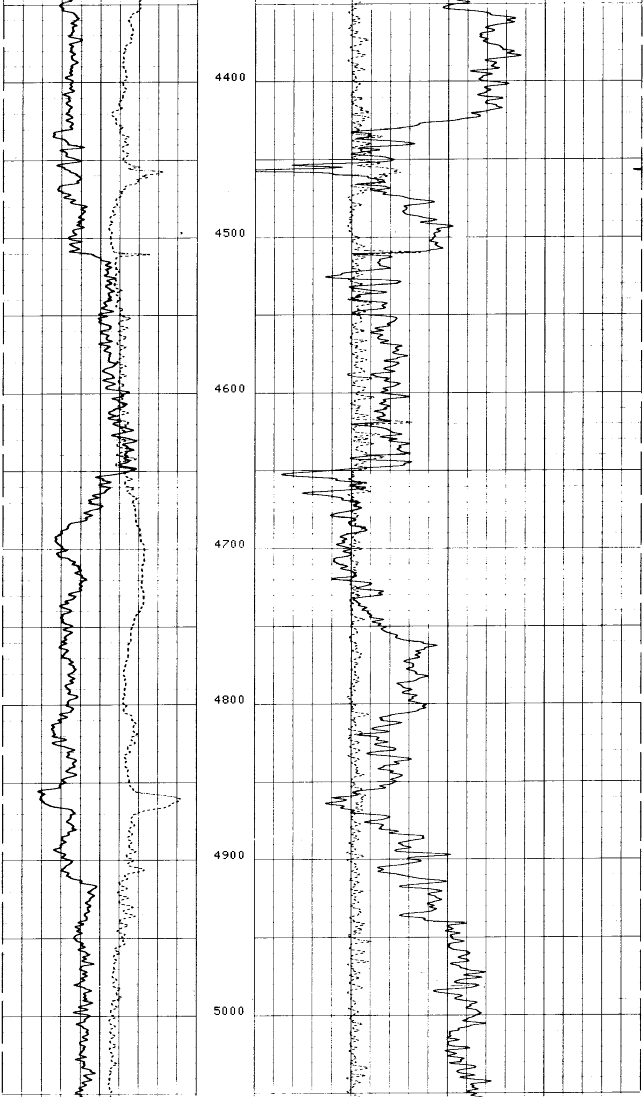

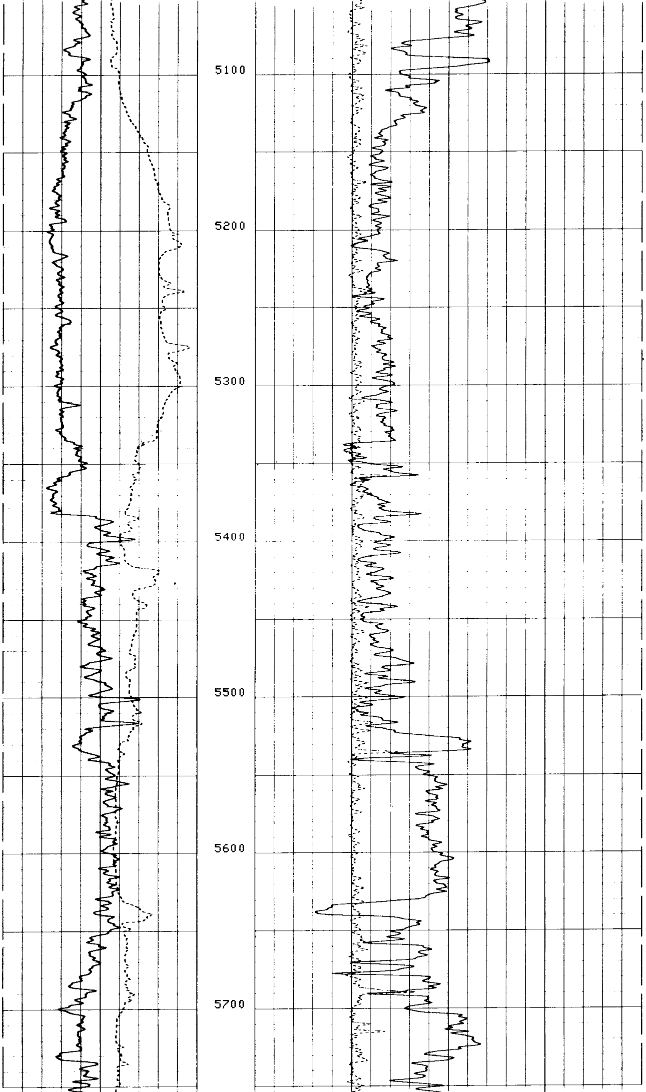

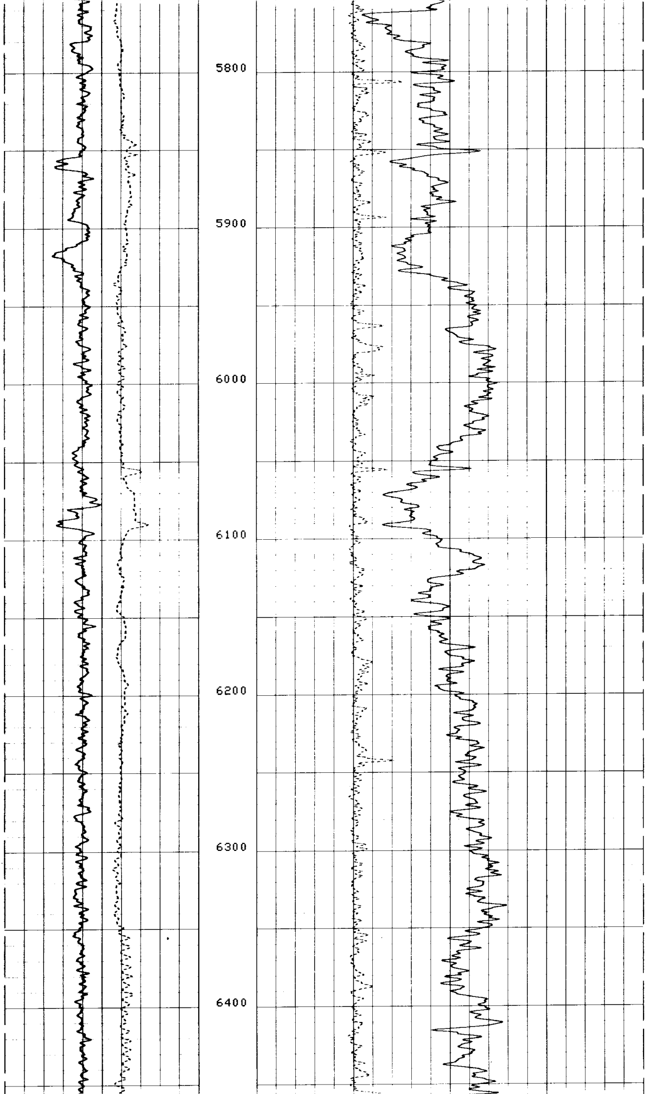

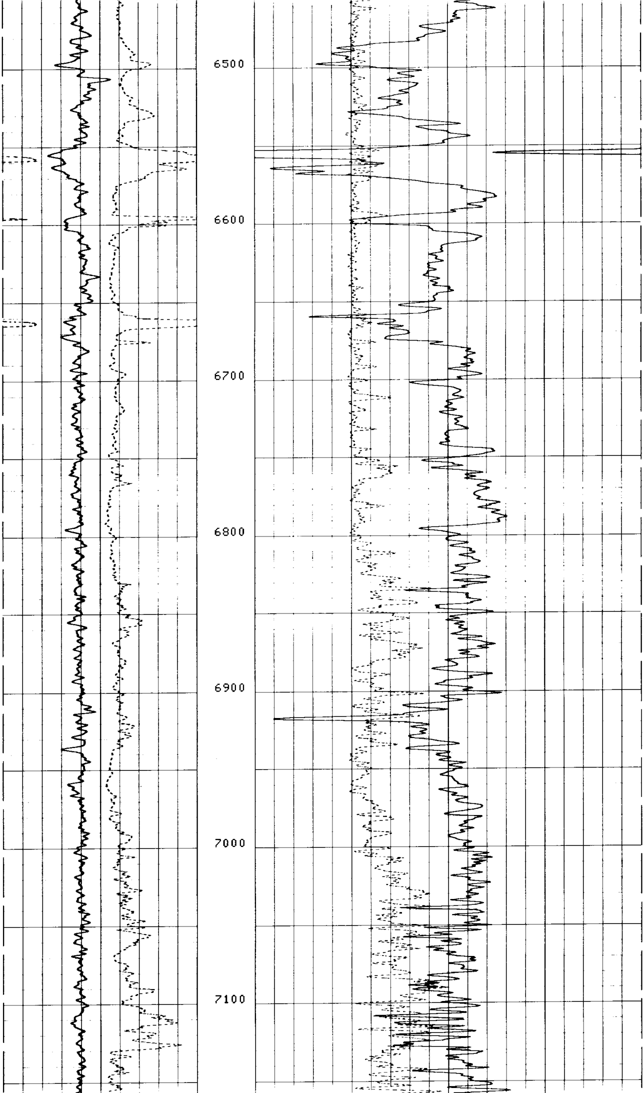

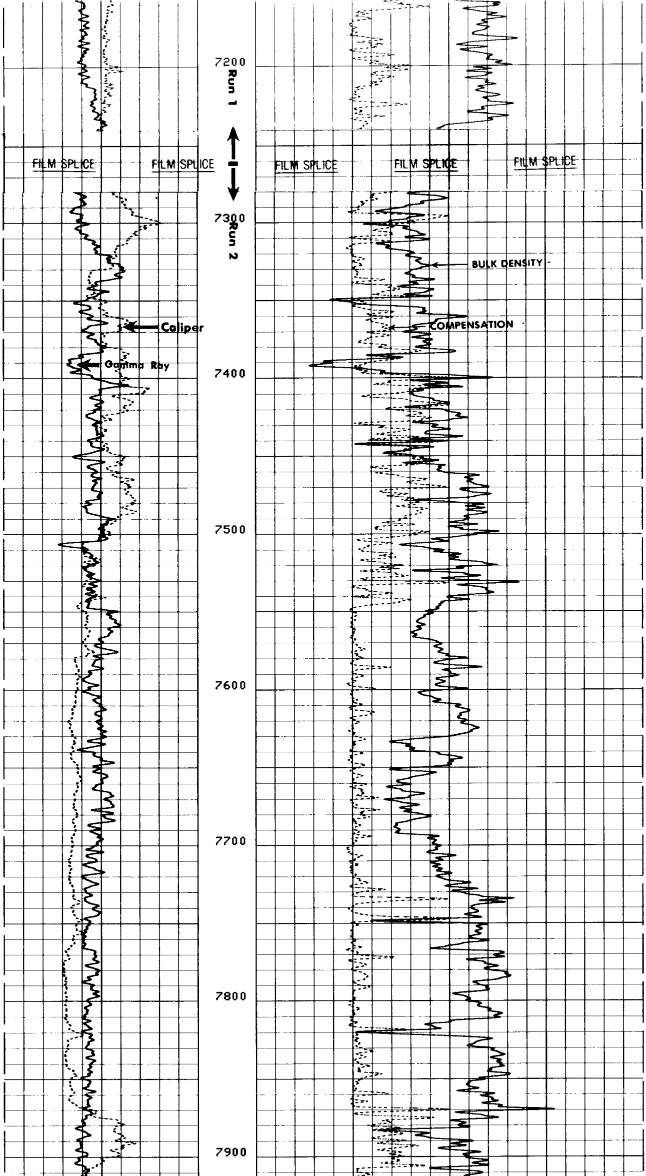

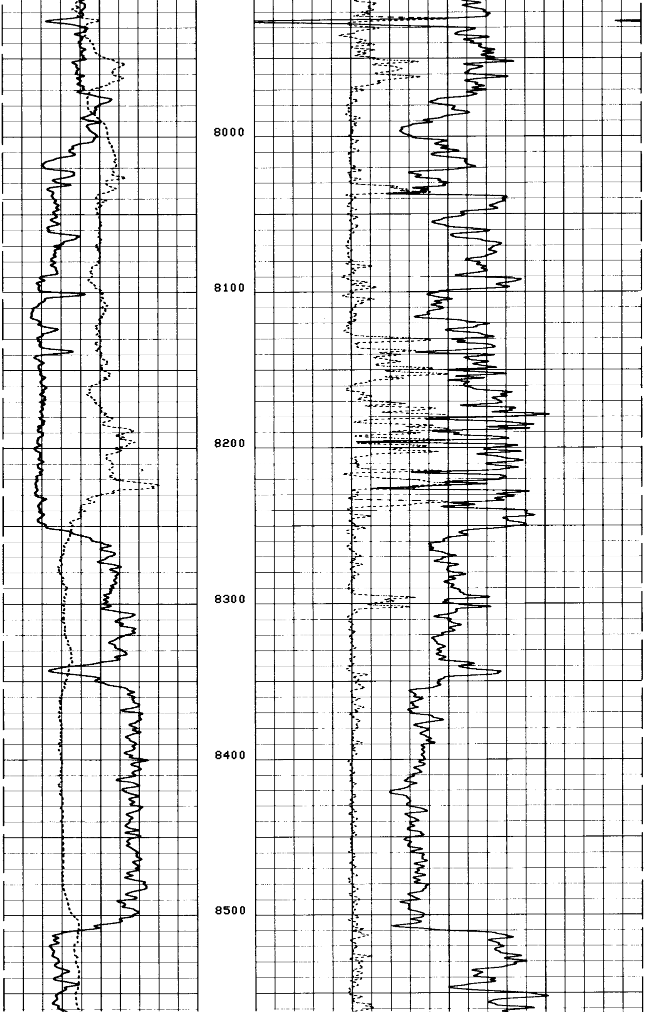

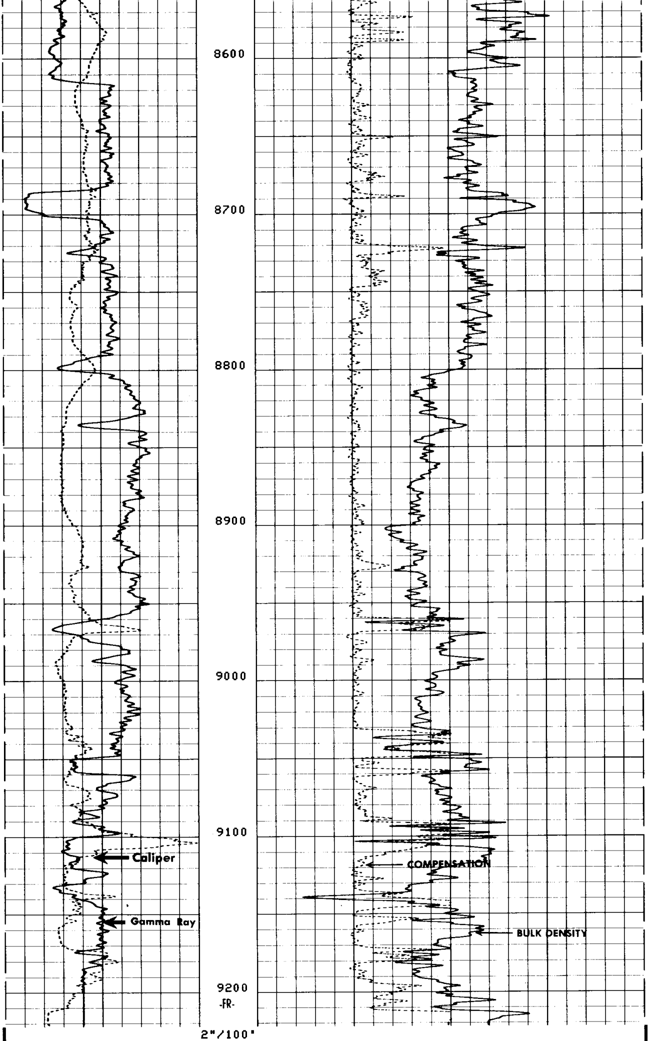

2"/100'

CP 30.4 FILE 24 24-AUG-88 19:40

INPUT FILES 20	DATA ACQUIRED 24-AUG-88 18:26

Curve	Left	Right
CALI(IN)	10.000	20.000
GR (GAPI)	0.0	150.00
DRHO(G/C3)	-.2500	.25000
RHOB(G/C3)	2.0000	3.0000

SENSOR MEASURE POINT TO TOOL ZERO

CFTC	18.1	FEET	GR	26.6	FEET
FFDC	2.7	FEET	CNTC	17.6	FEET
CALI	2.7	FEET	NFDC	2.7	FEET
TNRA	18.6	FEET	TENS	-.3	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	12.2500	IN	BHS	OPEN	
HC	CALI		FPHI	SPHI	
BHFL	WATE		MATR	SAND	
ANGL	0.0	DEG	GGRD	.0100000	DF/F
SOCN	.500000	IN	FSAL	-50000.0	PPM
SDAT	SOCN		MCOR	NATU	
MWCO	NO		PTCO	NO	
BSCO	NO		FSCO	NO	
SOCO	NO		MCCO	NO	
NPDC	0		HSCO	YES	
MDEN	2.65000	G/C3	FD	1.00000	G/C3
BHF	WATE		FDCC	ALLO	
DO	0.0	F	WMUD	8.70000	LB/G
PP	NORM				

DATA NOT RECORDED