COUNTY	COLUMBIA
FIELD	MIST
LOCATION	2450'W & 958'S
WELL	"KING" LF #31-36-65
COMPANY	NAHAMA & WEAGANT

Schlumberger

DUAL INDUCTION-SFL-SONIC

COMPANY	NAHAMA & WEAGANT
WELL	"KING" LF #31-36-65
FIELD	MIST
COUNTY	COLUMBIA **STATE** OREGON

LOCATION
2450'W & 958'S
FR NE COR

Other Services:
DIL-BHC

API SERIAL NO.	SECT.	TWP.	RANGE
36-009-00303	36	6N	5W

Permanent Datum	GL	Elev. 754.5 F	**Elev.:** K.B.764.5 F
Log Measured From	KB	10.0 F above Perm. Datum	D.F. 763.5 F
Drilling Measured From	DB		G.L.754.5 F

Date	3-AUG-93		
Run No.	ONE		
Depth Driller	3987.0 F		
Depth Logger (Schl.)	3985.0 F		
Btm. Log Interval	3979.0 F		
Top Log Interval	503.0 F		
Casing-Driller	8 5/8" @ 503.0 F	@	@
Casing-Logger	503.0 F		
Bit Size	7 7/8" @ 3987.0 F	@	@
Type Fluid in Hole	GEL/POLYMER		
Dens. | Visc.	10.20 LB/G | 39.0 S		
pH | Fld. Loss	7.0 | 6.9 C3		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp.	2.880 OHMM @ 80.0 DEGF	@	
Rmf @ Meas. Temp.	3.020 OHMM @ 66.0 DEGF	@	
Rmc @ Meas. Temp.	2.950 OHMM @ 66.0 DEGF	@	
Source: Rmf | Rmc	MEASURED | MEASURED		
Rm @ BHT	2.342 OHMM @ 100. DEGF	@	
TIME Circulation Ended	20:00 2-AUG-93		
TIME Logger on Bottom	01:34 3-AUG-93		
Max. Rec. Temp.	100. DEGF		
Equip. | Location	8271 | 4408		
Recorded By	ROANE THORPE		
Witnessed By	ROB LUCAS / BOB PINOTTI		

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

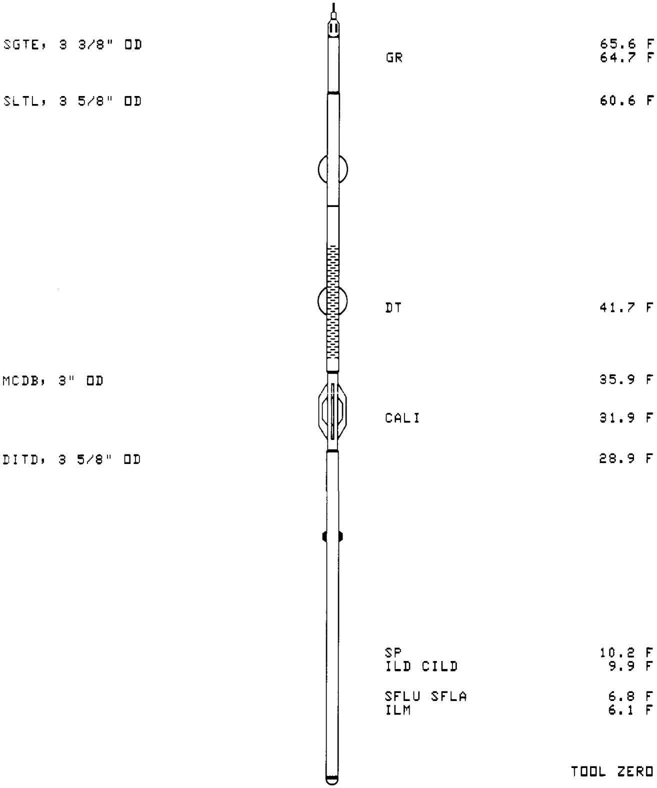
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

Run No.	ONE	
Service Order No.	624492	
Drilling Fluid Level		
Salinity	700.0 PPM	
Rmf @ BHT	2.060 OHMM @ 100. DEGF	@
Rmc @ BHT	2.013 OHMM @ 100. DEGF	@
Logging Speed	3600.0 F/HR	
EQUIPMENT DATA		
Tool Number 1	DIC-EC 1422	
Tool Number 2	DIC-DA 1149	
Tool Number 3	MCD-DA 668	
Tool Number 4	SLC-MA 159	
Tool Number 5	SLS-WA 389	
Tool Number 6	SGT-E 3206	
Tool Number 7	IEM-BD 685	
Tool Number 8	SLM-DA 1329	
Tool Number 9	NLM-BC 456	
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

ANOMALIES IN SFL NOT REPEATED AS REPEAT PERFORMED FROM 1250-1050 FT AS PER CLIENT REQUEST.

LOGGING TOOL STRING SKETCH



TOTAL TOOL STRING LENGTH IS 69.2 F.
TOTAL TOOL STRING WEIGHT IS 993. LB IN AIR.

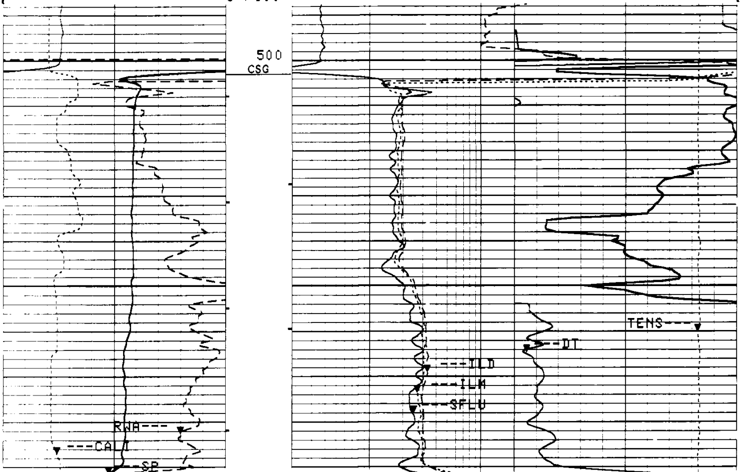
MAIN LOG

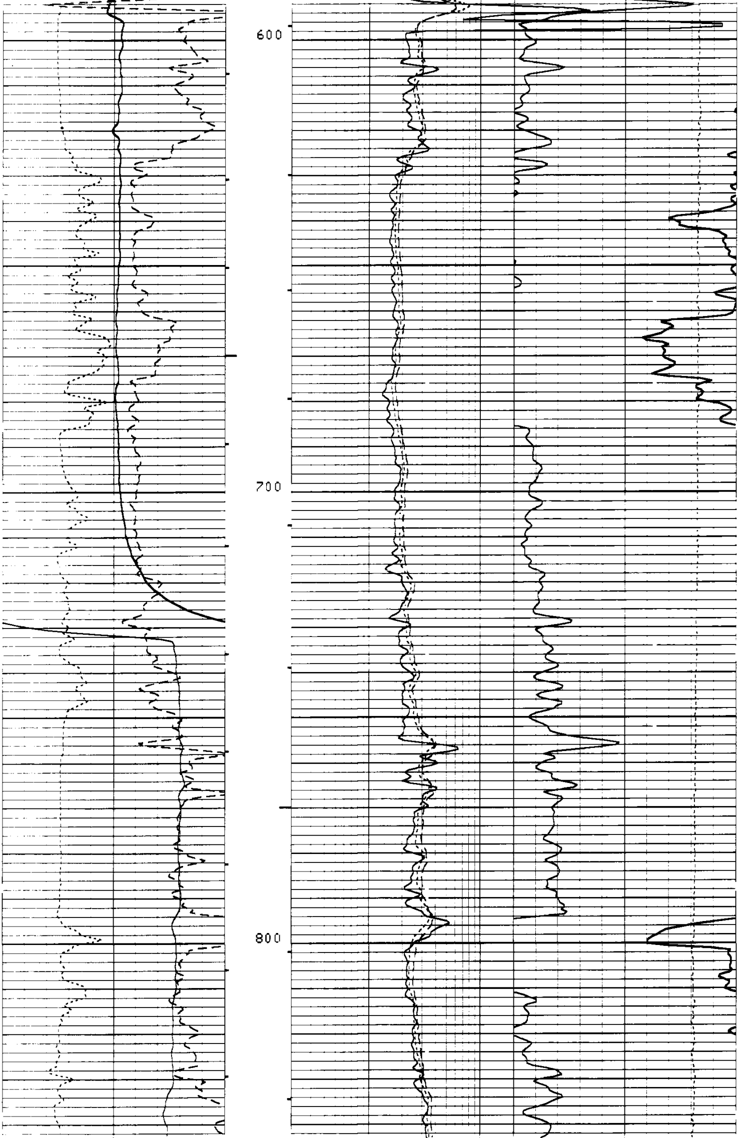
```
ACCUMULATED INTEGRATION VALUES SUMMARY:

Integrated Hole Volume:   972.591 F3    FROM 3985.00 F     TO 503.000 F
Integrated Cement Volume: 588.014 F3    FROM 3985.00 F     TO 503.000 F
  (ASSUMING 4.50000 IN   O.D. CASING)
```

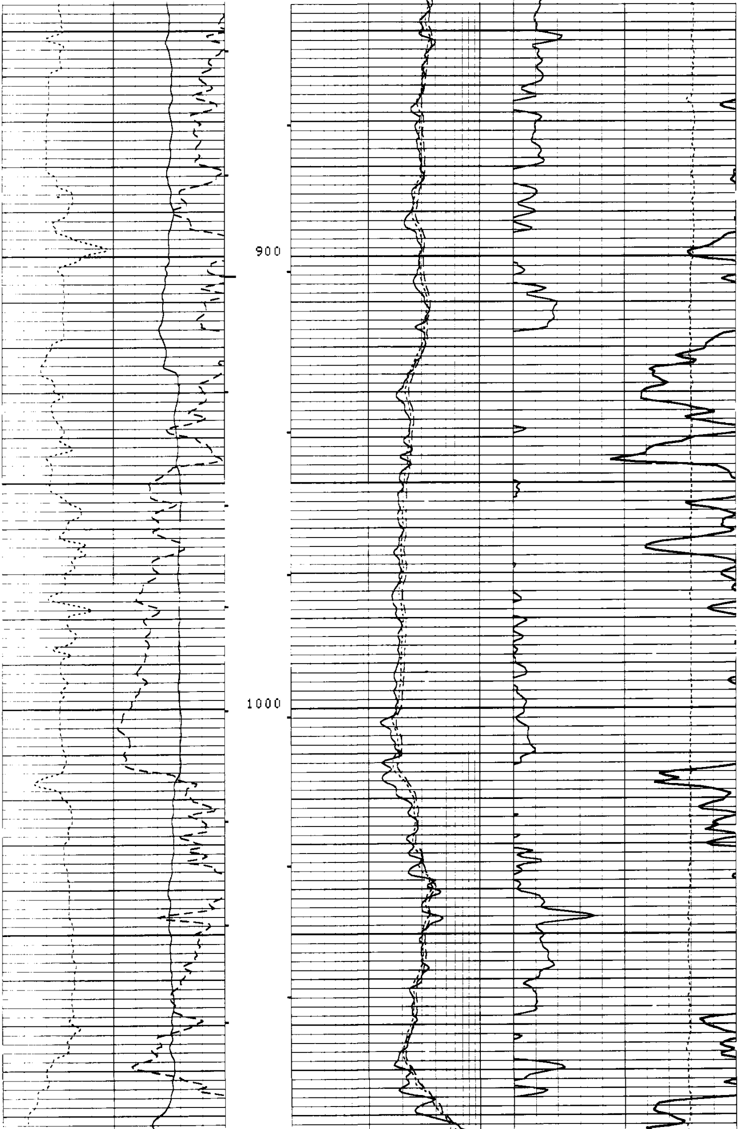
```
EVENT MARK SUMMARY:

OUTPUT                        INTERVAL       DEPTH TRACK
                              BETWEEN PIPS   EDGE

Integrated Hole Volume        10.0000 F3     LEFT EDGE
Integrated Cement Volume      10.0000 F3     RIGHT EDGE
```

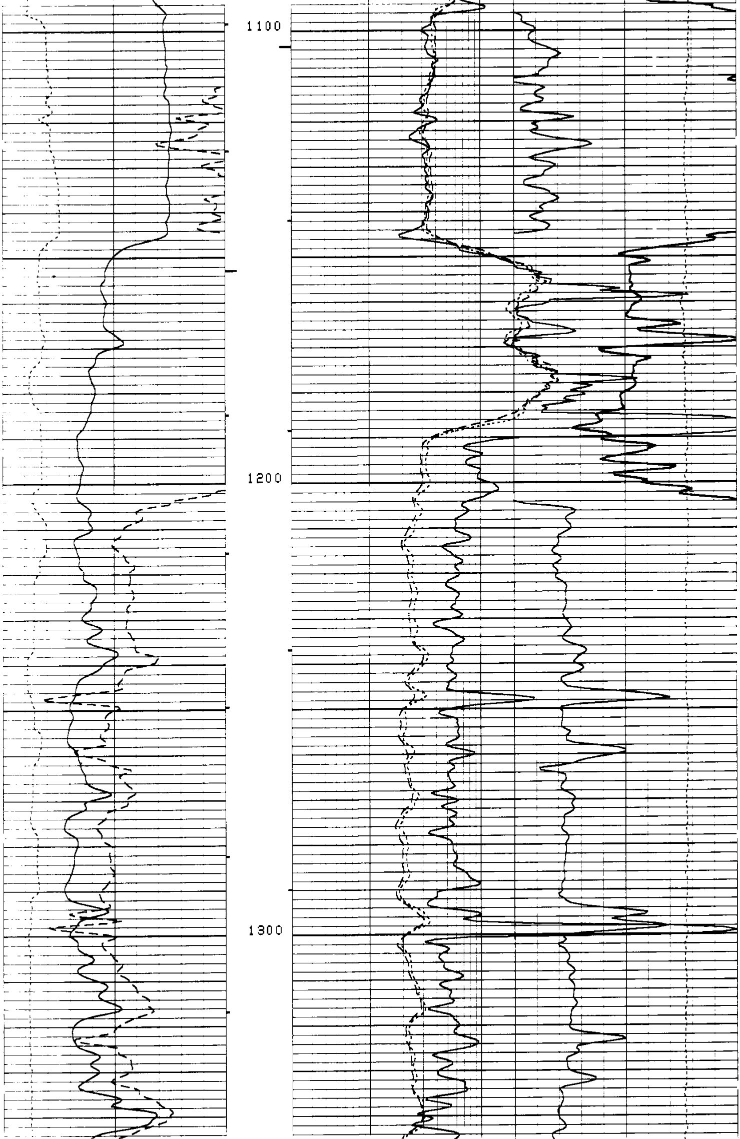
Curve	Left	Right
TENS(LBF)	10000.	0.0
DT(US/F)	150.00	50.000
RWA(OHMM)	0.0	.50000
CALI(IN)	6.0000	16.000
SP(MV)	-50.00	100.00
ILD(OHMM)	.20000	2000.0
ILM(OHMM)	.20000	2000.0
SFLU(OHMM)	.20000	2000.0

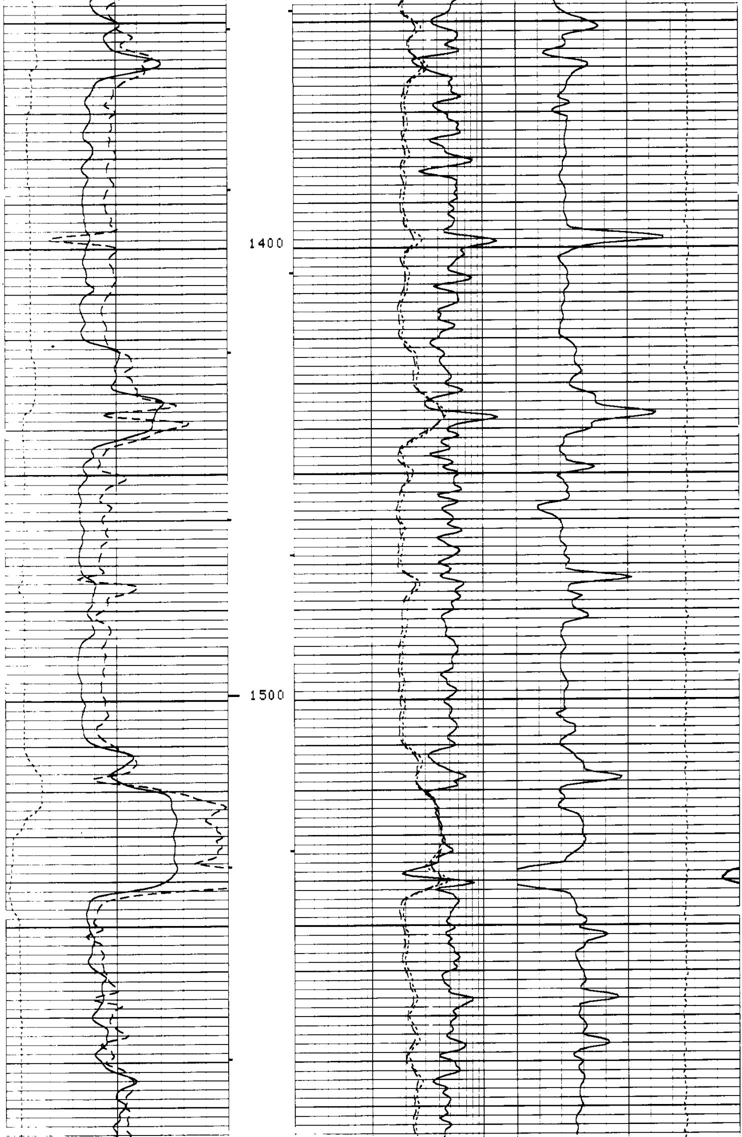
```
CP 38.2            FILE    15       03-AUG-1993 03:45

                   INPUT FILE(S)    CREATION DATE
                         10         03-AUG-1993 01:32

                   5"/100'
```

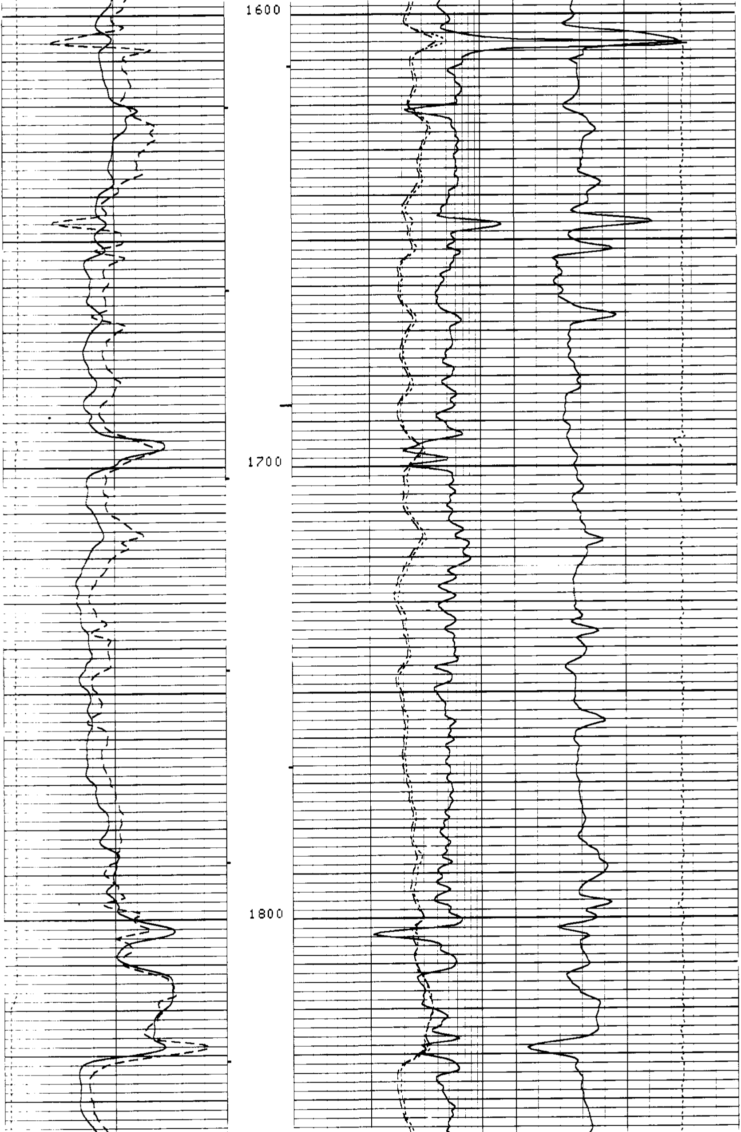


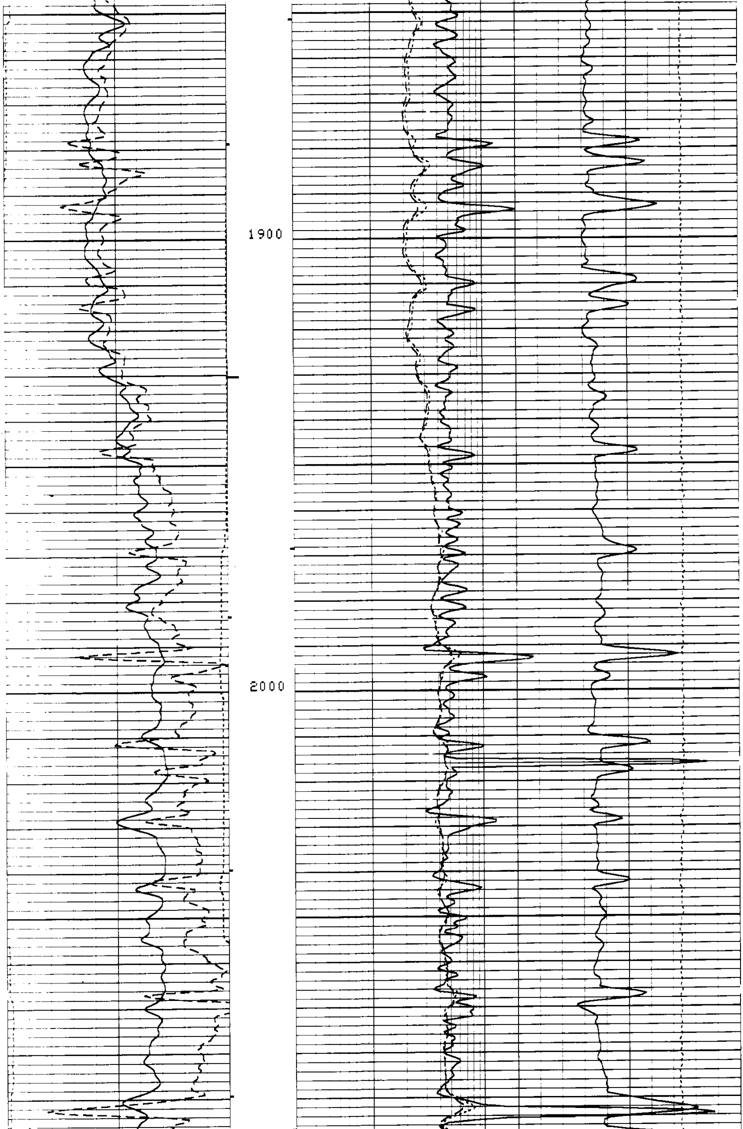


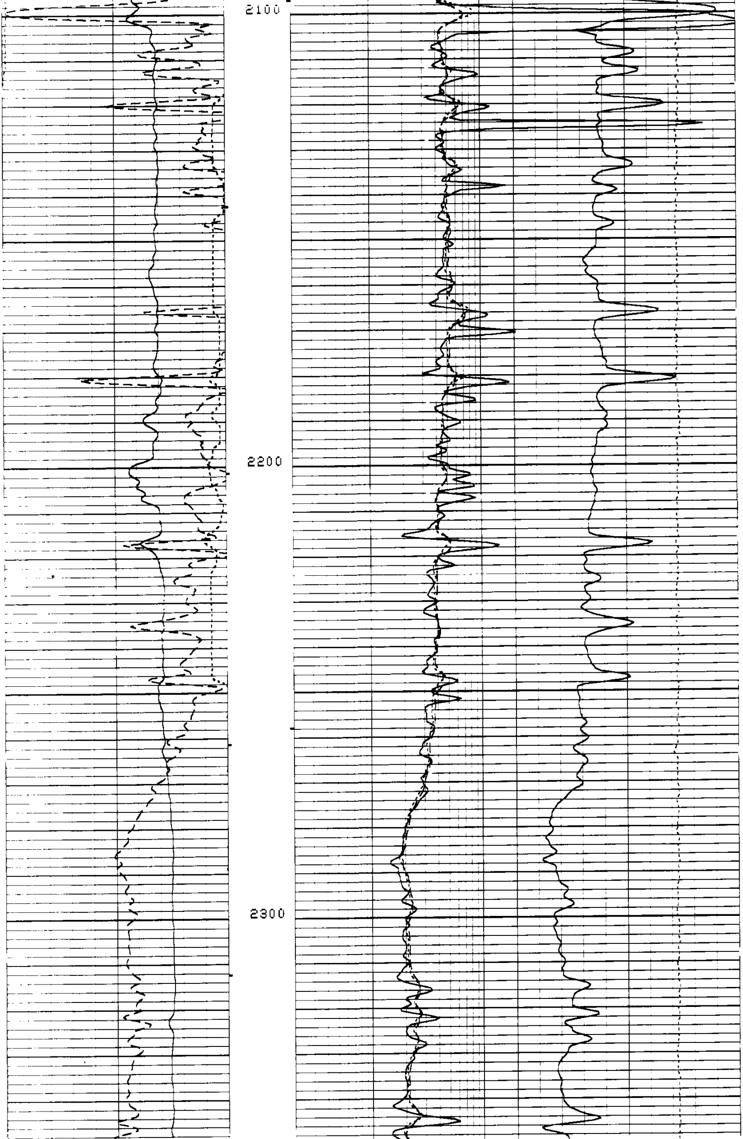


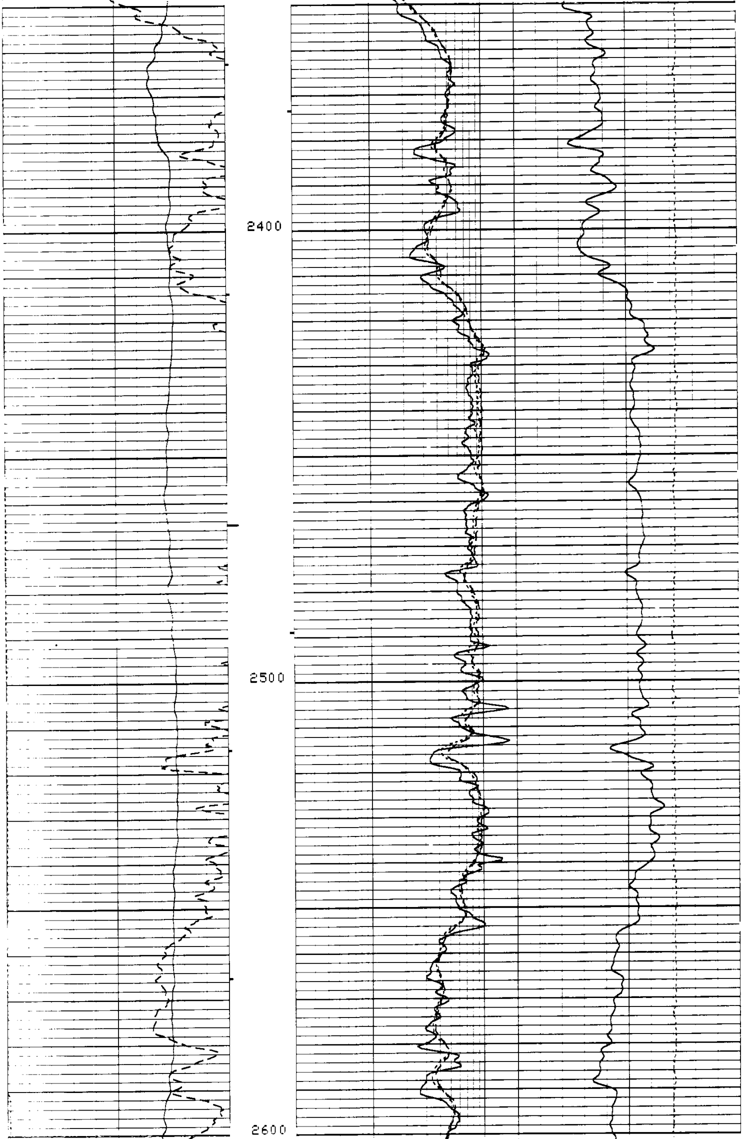


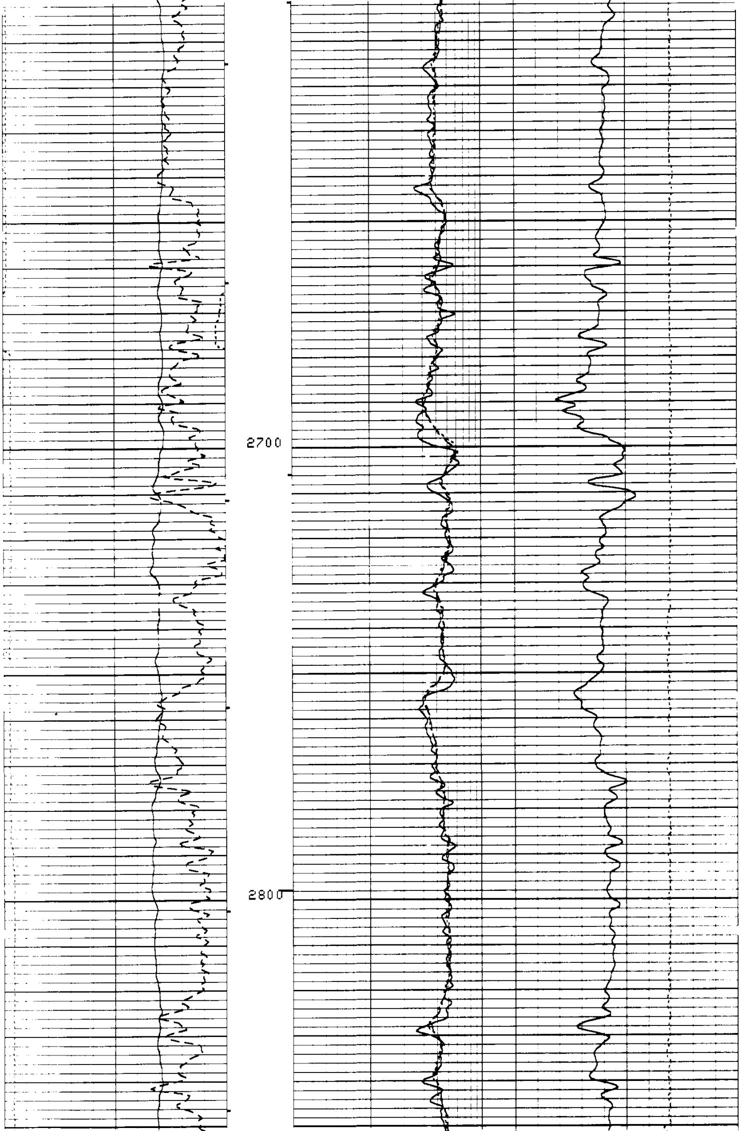


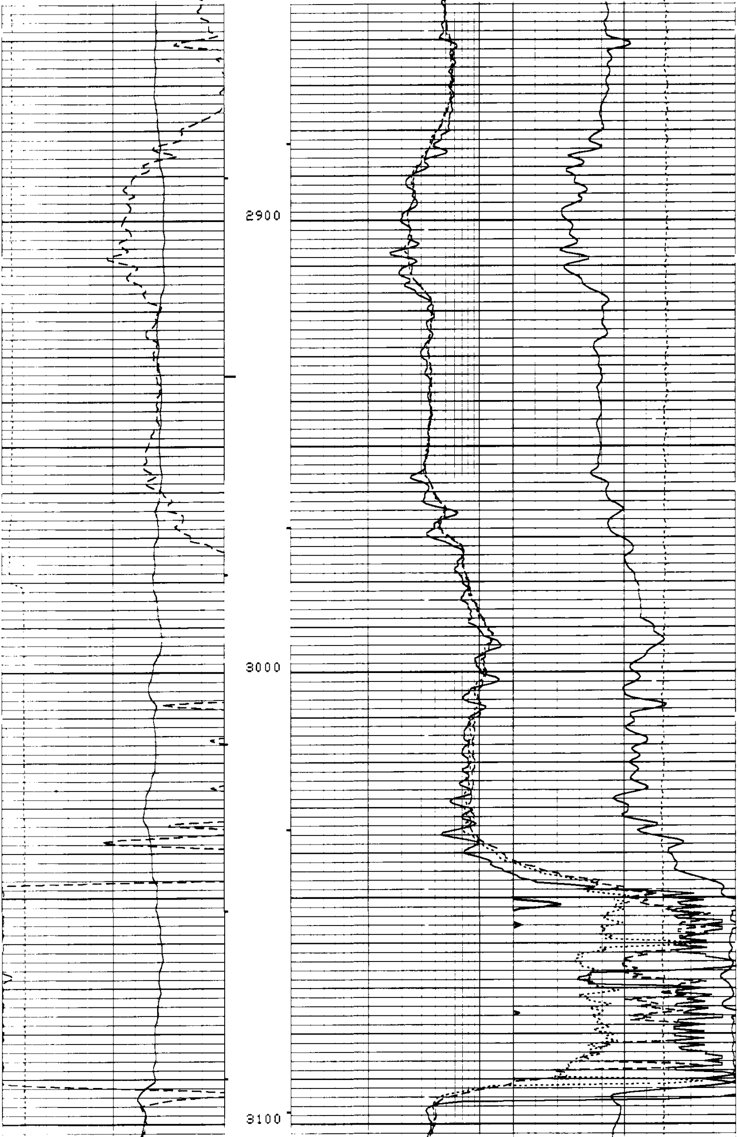


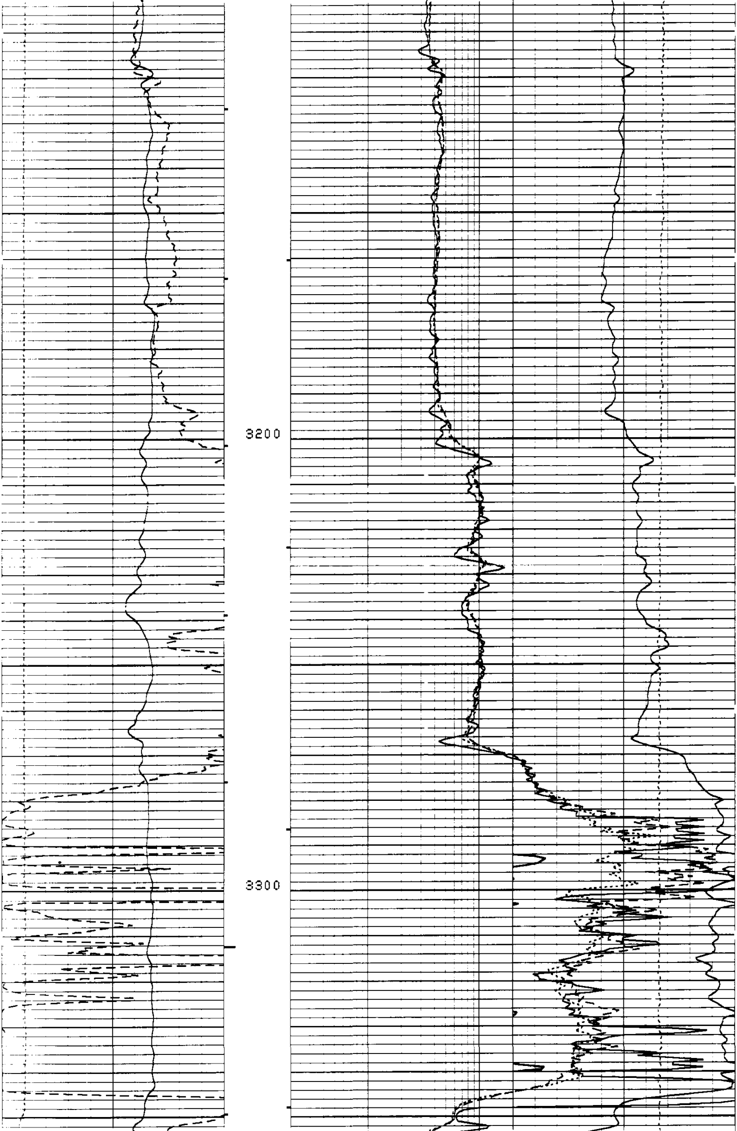


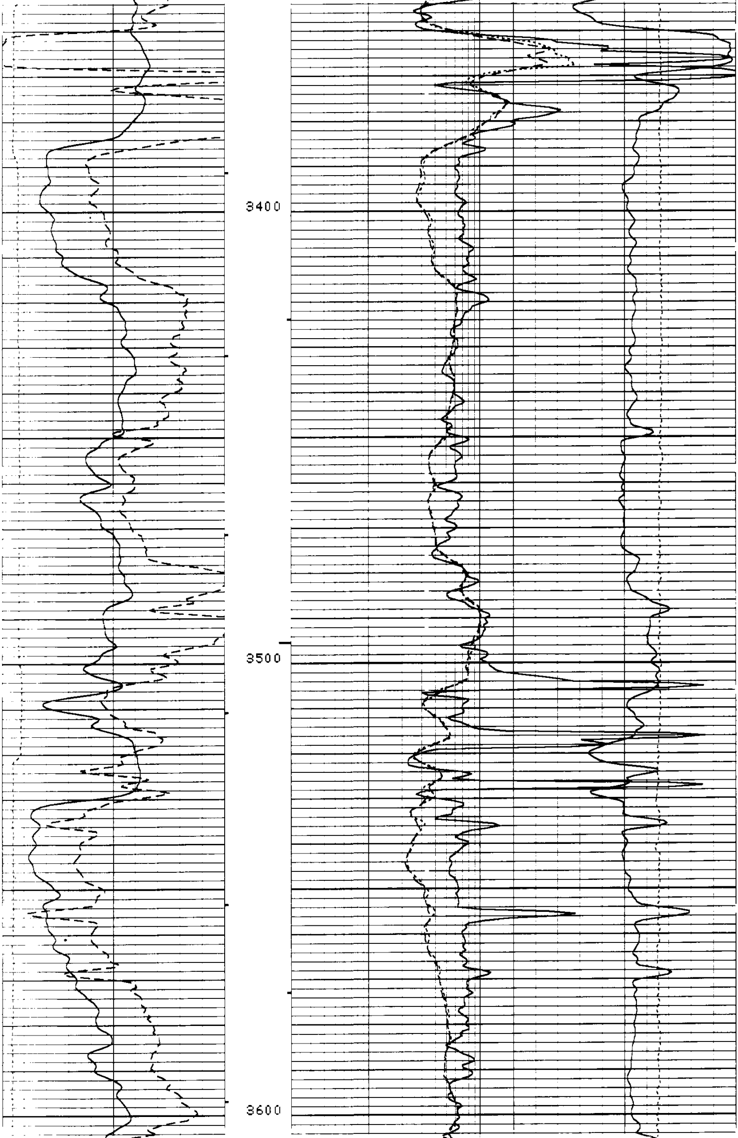


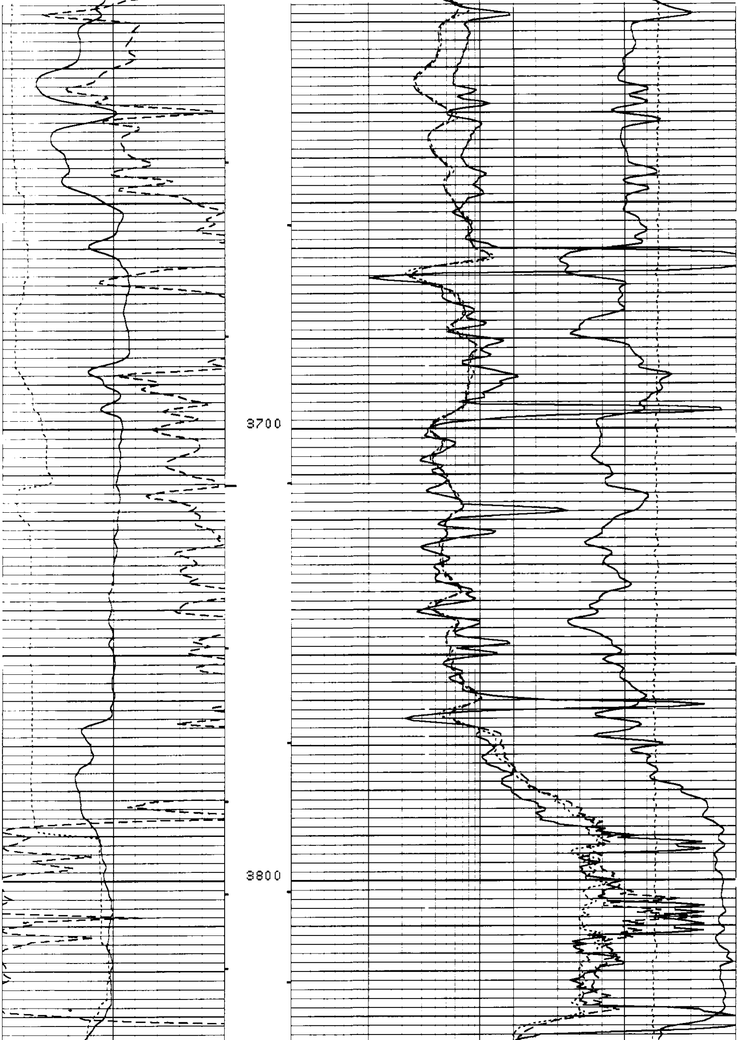


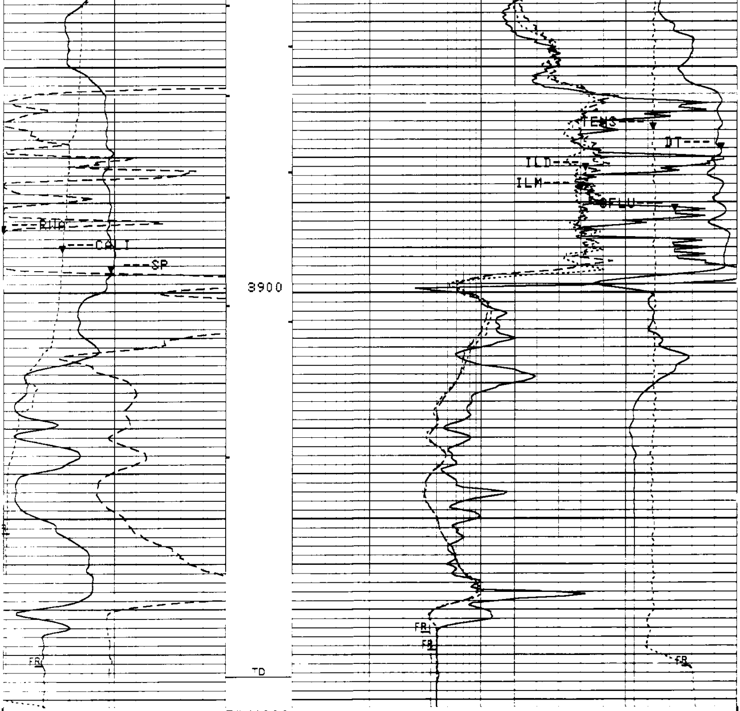












5"/100'

CP 38.2 FILE 15 03-AUG-1993 03:39

INPUT FILE(S) CREATION DATE
10 03-AUG-1993 01:32

Curve	Left	Right
TENS(LBF)	10000.	0.0
DT(US/F)	150.00	50.000
RWA(OHMM)	0.0	.50000
CALI(IN)	6.0000	16.000
SP(MV)	-50.00	100.00
ILD(OHMM)	.20000	2000.0
ILM(OHMM)	.20000	2000.0
SFLU(OHMM)	.20000	2000.0

SENSOR MEASURE POINT TO TOOL ZERO

MCDB 31.9 FEET
DTT 2.5 FEET
SLTQ 44.1 FEET
SGTE 62.7 FEET
DITD 9.9 FEET

PARAMETERS

PARAMETER	VALUE	UNIT

```
SMB  - Sonic Memory Board                               DISA
VDLR - Defn not found                                   2IN
TOCA - TO Correction Status                             DISA
RATE - Firing Rate                                      15            HZ
DG   - Downhole Gain                                    /5
DETE - Detection                                        E2
NMSG - Near Minimum Sliding Gate                        180           US
CBLG - CBL Gate Width                                   35            US
AMPL - Sonic Amplitude                                  2
CBL  - Cement Bond Log Amplitude                        UT
WFM  - Waveform Mode                                    1
SS   - Sweep Speed                                      FAST
TOD  - TO Delay                                         DISA
DTF  - Delta-T Fluid                                    189.000       US/F
DTM  - Delta-T Matrix                                   56.0000       US/F
CDTS - Correction for Delta-T Shale, Empirical          100.000
SPFS - Sonic Porosity Formula Select                    R-H
PP   - Playback Processing                              NORM
DO   - Depth Offset for Logical Unit LI1                0.0           F
WMUD - Weight of Mud                                    10.2000       LB/G
MSEC - Medium Sonde Error Correction                    7.50000       MM/M
SBR  - Shoulder Bed Resistivity                         1.00000       OHMM
DSEC - Deep Sonde Error Correction                      4.40000       MM/M
FCD  - Future Casing Diameter                           4.50000       IN
NCJT - NGT Calibration Jig Type                         GSRY
FPHI - Formation Factor Formula Porosity                SPHI
DWCO - Digitizer Word Count                             512
DSIN - Digitizer Sample Interval                        5             US
DDEL - Digitizing Delay                                 200           US
BS   - Bit Size                                         7.87500       IN
BHS  - BoreHole Status (Open or Cased)                  OPEN
```

REPEAT SECTION

```
ACCUMULATED INTEGRATION VALUES SUMMARY:

Integrated Hole Volume:   118.165 F3    FROM 1312.50 F    TO 988.500 F
Integrated Cement Volume: 82.3803 F3    FROM 1312.50 F    TO 988.500 F
  (ASSUMING 4.50000 IN   O.D. CASING)
```

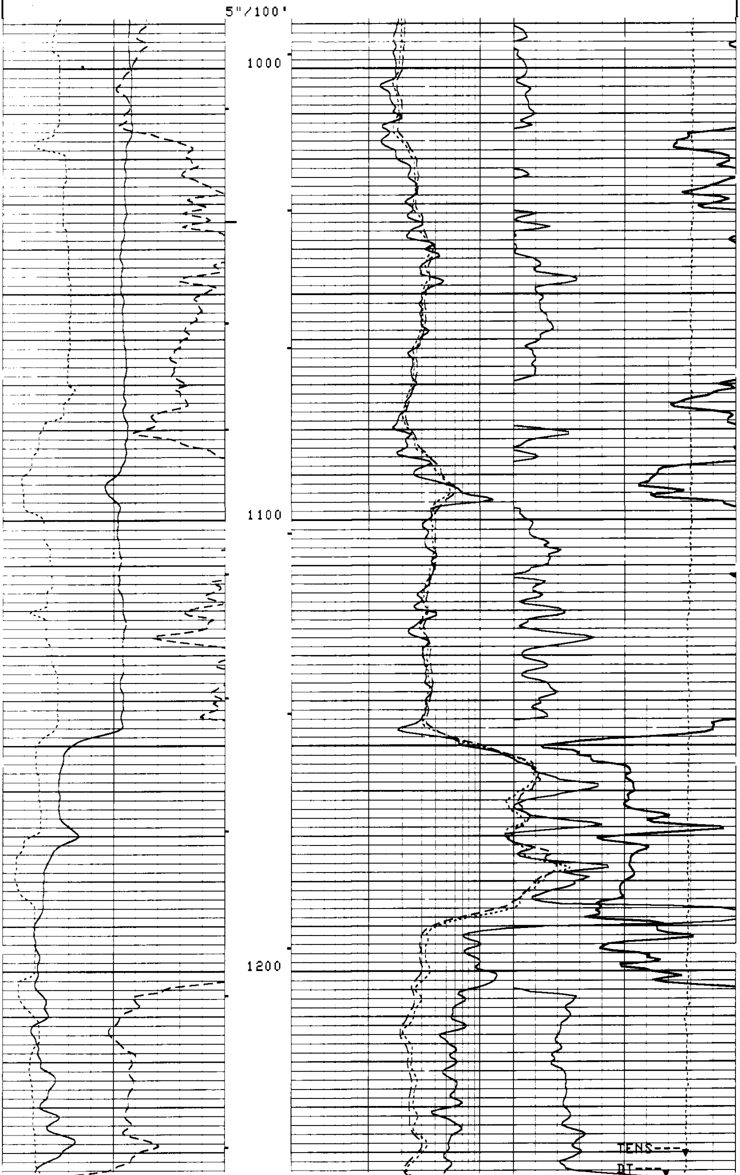
```
EVENT MARK SUMMARY:

OUTPUT                        INTERVAL         DEPTH TRACK
                              BETWEEN PIPS     EDGE

Integrated Hole Volume        10.0000 F3       LEFT EDGE
Integrated Cement Volume      10.0000 F3       RIGHT EDGE
```

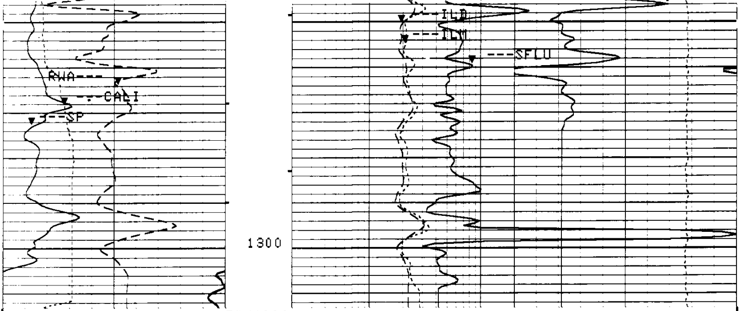
TENS(LBF)
10000. 0.0
DT(US/F)
150.00 50.000

RWA(OHMM)
0.0 .50000
CALI(IN)
6.0000 16.000
SP(MV)
-50.00 100.00

ILD(OHMM)
.20000 2000.0
ILM(OHMM)
.20000 2000.0
SFLU(OHMM)
.20000 2000.0

```
CP 38.2              FILE   14        03-AUG-1993 03:36

                     INPUT FILE(S)    CREATION DATE
                           8          03-AUG-1993 00:42
```





5"/100'

CP 38.2 FILE 14 03-AUG-1993 03:35

INPUT FILE(S) 8
CREATION DATE 03-AUG-1993 00:42

TENS(LBF)
10000. 0.0
DT(US/F)
150.00 50.000

RWA(OHMM)
0.0 .50000
CALI(IN)
6.0000 16.000
SP(MV)
-50.00 100.00

ILD(OHMM)
.20000 2000.0
ILM(OHMM)
.20000 2000.0
SFLU(OHMM)
.20000 2000.0

SENSOR MEASURE POINT TO TOOL ZERO

MCDB 31.9 FEET
DTT 2.5 FEET
SLTQ 44.1 FEET
SGTE 62.7 FEET
DITD 9.9 FEET

PARAMETERS

PARAMETER	VALUE	UNIT
SMB - Sonic Memory Board	DISA	
VDLR - Defn not found	2IN	
TOCA - TO Correction Status	DISA	
RATE - Firing Rate	15	HZ
DG - Downhole Gain	/5	
DETE - Detection	E2	
NMSG - Near Minimum Sliding Gate	180	US
CBLG - CBL Gate Width	35	US
AMPL - Sonic Amplitude	2	
CBL - Cement Bond Log Amplitude	UT	
WFM - Waveform Mode	1	
SS - Sweep Speed	FAST	
TOD - TO Delay	DISA	
DTF - Delta-T Fluid	189.000	US/F
DTM - Delta-T Matrix	56.0000	US/F
CDTS - Correction for Delta-T Shale, Empirical	100.000	
SPFS - Sonic Porosity Formula Select	R-H	
PP - Playback Processing	NORM	
DO - Depth Offset for Logical Unit LI1	0.0	F
WMUD - Weight of Mud	10.2000	LB/G
MSEC - Medium Sonde Error Correction	7.50000	MM/M
SBR - Shoulder Bed Resistivity	1.00000	OHMM
DSEC - Deep Sonde Error Correction	4.40000	MM/M
FCD - Future Casing Diameter	4.50000	IN
NCJT - NGT Calibration Jig Type	GSRY	
FPHI - Formation Factor Formula Porosity	SPHI	

```
DWCO - Digitizer Word Count                        512
DSIN - Digitizer Sample Interval                   5            US
DDEL - Digitizing Delay                            200          US
BS   - Bit Size                                    7.87500      IN
BHS  - BoreHole Status (Open or Cased)             OPEN
```

CALIBRATION SUMMARY

```
               AFTER SURVEY TOOL CHECK SUMMARY


  PERFORMED:     03-AUG-1993 02:48
  PROGRAM FILE: ISN    (VERSION    38.2    92/10/12  92/10/12)


DITD                        TOOL  CHECK

                     ZERO                          PLUS
              BEFORE         AFTER          BEFORE      AFTER     UNITS
   ILD          0.0           -.3           501.6       501.7     MM/M
   ILM          -.0           -.2           499.0       498.6     MM/M
   SFL          -.0           -.3           500.0       493.1     MM/M

ILD SONDE ERROR CORRECTION :         4.4 MM/M
ILM SONDE ERROR CORRECTION :         7.5 MM/M

BEFORE SURVEY:            ZERO: 03-AUG-1993 00:39  PLUS: 03-AUG-1993 00:40
AFTER SURVEY CHECK:       ZERO: 03-AUG-1993 02:46  PLUS: 03-AUG-1993 02:47

   CP 38.2           FILE   12       03-AUG-1993 02:47



               BEFORE SURVEY CALIBRATION SUMMARY


  PERFORMED:     03-AUG-1993 00:42
  PROGRAM FILE: ISN    (VERSION    38.2    92/10/12  92/10/12)


DITD            ELECTRONICS CALIBRATION SUMMARY

               MEASURED                      CALIBRATED
             ZERO    PLUS                 ZERO       PLUS          UNITS
   ILD        .87    518.8                0.0        501.6          MM/M
   ILM        .58    510.4                0.0        499.0          MM/M
   SFL       1.27    497.3                0.0        500.0          MM/M

ILD SONDE ERROR CORRECTION :         4.4 MM/M
ILM SONDE ERROR CORRECTION :         7.5 MM/M

ZERO: 03-AUG-1993 00:39  PLUS: 03-AUG-1993 00:40  COMP: 03-AUG-1993 00:40


SGTE            DETECTOR CALIBRATION SUMMARY

               MEASURED
             BKGD    JIG        CALIBRATED         UNITS
    GR        45     193           165             GAPI

BACK: 02-AUG-1993 23:26   JIG: 02-AUG-1993 23:28  COMP: 02-AUG-1993 23:28


MCDB            CALIPER CALIBRATION SUMMARY

               MEASURED                      CALIBRATED
             SMALL   LARGE                SMALL      LARGE         UNITS
  CALI       7.93    11.12                8.00       12.00          IN

SMALL: 02-AUG-1993 23:11 LARGE: 02-AUG-1993 23:11 COMP: 02-AUG-1993 23:12
```

```
   CP 38.2             FILE    7       03-AUG-1993 00:41


                   SHOP SUMMARY


  PERFORMED:     14-JUL-1993 14:24
  PROGRAM FILE:  SHOP   (VERSION    38.2    92/10/12  92/10/12)


 DITD              ELECTRONICS CALIBRATION SUMMARY

                 TEST LOOP CALIBRATION             TOOL CHECK
              MEASURED          CALIBRATED         CALIBRATED
           ZERO     PLUS     ZERO       PLUS      ZERO       PLUS    UNITS
    ILD    -2.8     486.9     0.0       500.0     0.0        501.6   MM/M
    ILM    -7.8     503.0     0.0       500.0     0.0        499.0   MM/M
 ILD  SONDE ERROR CORRECTION :        4.4 MM/M
 ILM  SONDE ERROR CORRECTION :        7.5 MM/M

                       (IS:1422, IC:1149)

   CP 38.2             FILE    8       14-JUL-1993 14:24
```

COMPANY	NAHAMA & WEAGANT			**SCHL.**	**FR**	3979.0 F
				SCHL.	**TD**	3985.0 F
WELL	"KING" LF #31-36-65			**DRLR.**	**TD**	3987.0 F
				Elev:	**KB**	764.5 F
FIELD	MIST				**DF**	763.5 F
COUNTY	COLUMBIA	**STATE**	OREGON		**GL**	754.5 F

Schlumberger

DUAL INDUCTION-SFL-SONIC