DOGAMI #508

Schlumberger

FORMATION MICROSCANNER GAMMA RAY

COUNTY COLUMBIA
FIELD MIST GAS STORAGE
LOCATION N 03-03-15 E 2286.41 & S 86-56-45
WELL IW 22DH-22-65
COMPANY NORTHWEST NATURAL GAS CO.

COMPANY NORTHWEST NATURAL GAS CO.

WELL IW 22DH-22-65

FIELD MIST GAS STORAGE

COUNTY: COLUMBIA **STATE:** OREGON

SCANNED

LOCATION N 03 03 15 E 2286.41' & S 86 56 45
1915.16' FROM THE SW CORNER OF SEC. 22

API SERIAL NO.	SECT.	TWP.	RANGE
36-009-00328	22	6N	5W

Other Services:
INDUCTION
SONIC
FMS
DENSITY
NEUTRON
GAMMA RAY

Permanent Datum GROUND LEVEL **Elev.** 579.7 F
Log Measured From KELLY BUSHING 16.0 F **above Perm. Datum**
Drilling Measured From KELLY BUSHING

Elev.: K.B. 595.7 F
D.F.
G.L. 579.7 F

Date	16-JAN-1998		23-JAN-1998	
Run No.	ONE		TWO	
Depth Driller	1995.0 F		2746.0 F	
Depth Logger (Schl.)	1990.0 F		2735.0 F	
Btm. Log Interval	1980.0 F		2725.0 F	
Top Log Interval	0.0 F		1990.0 F	
Casing-Driller	13 3/8" @ 426.0 F	8 5/8" @ 1992.0 F	@	
Casing-Logger	422.0 F	1992.0 F		
Bit Size	@	@	@	
Type Fluid in Hole	LSND		FLO-PRO	
Dens. / **Visc.**	9.80 LB/G	47.0 S	8.50 LB/G	
pH / **Fld. Loss**	8.5		10.0	
Source of Sample	FLOWLINE		FLOWLINE	
Rm @ Meas. Temp.	2.620 OHMM @ 64.0 DEGF		.245 OHMM @ 69.0 DEGF	
Rmf @ Meas. Temp.	1.560 OHMM @ 62.0 DEGF		.122 OHMM @ 67.0 DEGF	
Rmc @ Meas. Temp.	1.320 OHMM @ 62.0 DEGF		.134 OHMM @ 67.0 DEGF	
Source: Rmf / **Rmc**	CELL	CELL	CELL	CELL
Rm @ BHT	1.806 OHMM @ 96.0 DEGF		.176 OHMM @ 99.0 DEGF	
TIME **Circulation Ended**	2:00 16-JAN-98		18:30 22-JAN-98	
TIME **Logger on Bottom**	SEE LOG			
Max. Rec. Temp.	96.0 DEGF		99.0 DEGF	
Equip. / **Location**	8303	BAKERSFIELD	8303	BAKERSFIELD
Recorded By	GREG PERRY		GREG PERRY	
Witnessed By	MR. MEYER / MR. THOMAS		MR. ROTH	

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 wilful 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	TWO
Service Order No.		
Drilling Fluid Level	0.0 F	
Salinity		
Rmf @ BHT	1.045 OHMM @ 96.0 DEGF	085 OHMM @ 99.0 DEGF
Rmc @ BHT	.884 OHMM @ 96.0 DEGF	.094 OHMM @ 99.0 DEGF
Logging Speed	1800.0 F/HR	
EQUIPMENT DATA		
Tool Number 1	DIS 151	
Tool Number 2	DIC 159	
Tool Number 3	SLSWA	
Tool Number 4	SLC 432	
Tool Number 5	SGC 483	
Tool Number 6	TCCB 1289	
Tool Number 7		
Tool Number 8	AMS	
Tool Number 9	SHE	
Tool Number 10		
Tool Number 11		
Tool Number 12		

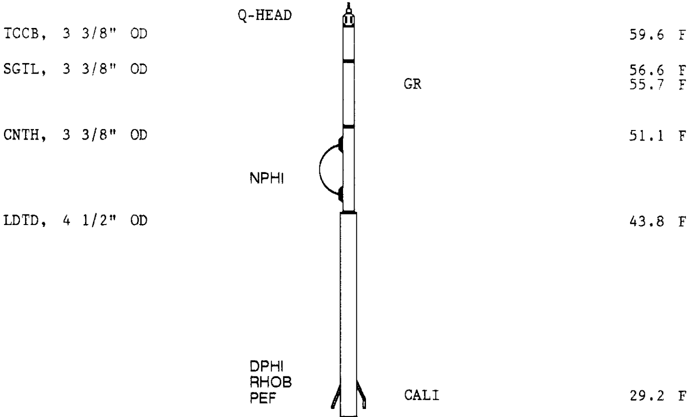
REMARKS:
RAN FLEX JOINTS ON INDUCTION AND SONIC.
RAN 6 ARM FINS ON SONIC.
RAN FLEX JOINTS ABOVE FMS AND ABOVE AMS.

DID NOT TAG TD DUE TO PUSH DOWN TOOLS.

CREW: DAN LEE.

THANKS FOR CHOOSING SCHLUMBERGER!!!!!!

LOGGING TOOL STRING SKETCH



```
MESTC, 5" OD                                                    26.5 F
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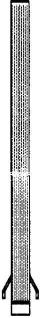


```
GPIT                                   EV  C2  C1                  2.2  F
                                       AZ                   1.1  F 1.1  F
                                                              TOOL  ZERO
```

```
              TOTAL  TOOL  STRING  LENGTH  IS  61.6  F.
          TOTAL  TOOL  STRING  WEIGHT  IS  1115.  LB  IN  AIR.
```

MAIN PASS

```
SPEED CORRECTION NOT APPLIED
```

```
ACCUMULATED INTEGRATION VALUES SUMMARY:

Integrated Hole Volume:    747.444 F3    FROM 1191.00 F    TO 406.500 F
Integrated Cement Volume: 436.060 F3    FROM 1191.00 F    TO 406.500 F
  (ASSUMING 8.67500 IN   O.D. CASING)
```

```
EVENT MARK SUMMARY:

OUTPUT                      INTERVAL        DEPTH TRACK
                            BETWEEN PIPS    EDGE

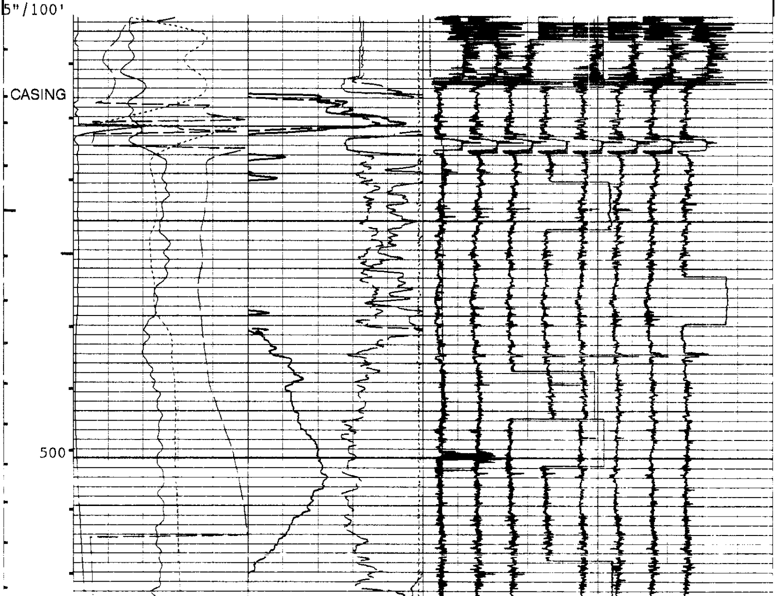
Integrated Hole Volume      10.0000 F3      LEFT EDGE
Integrated Cement Volume    10.0000 F3      RIGHT EDGE
```

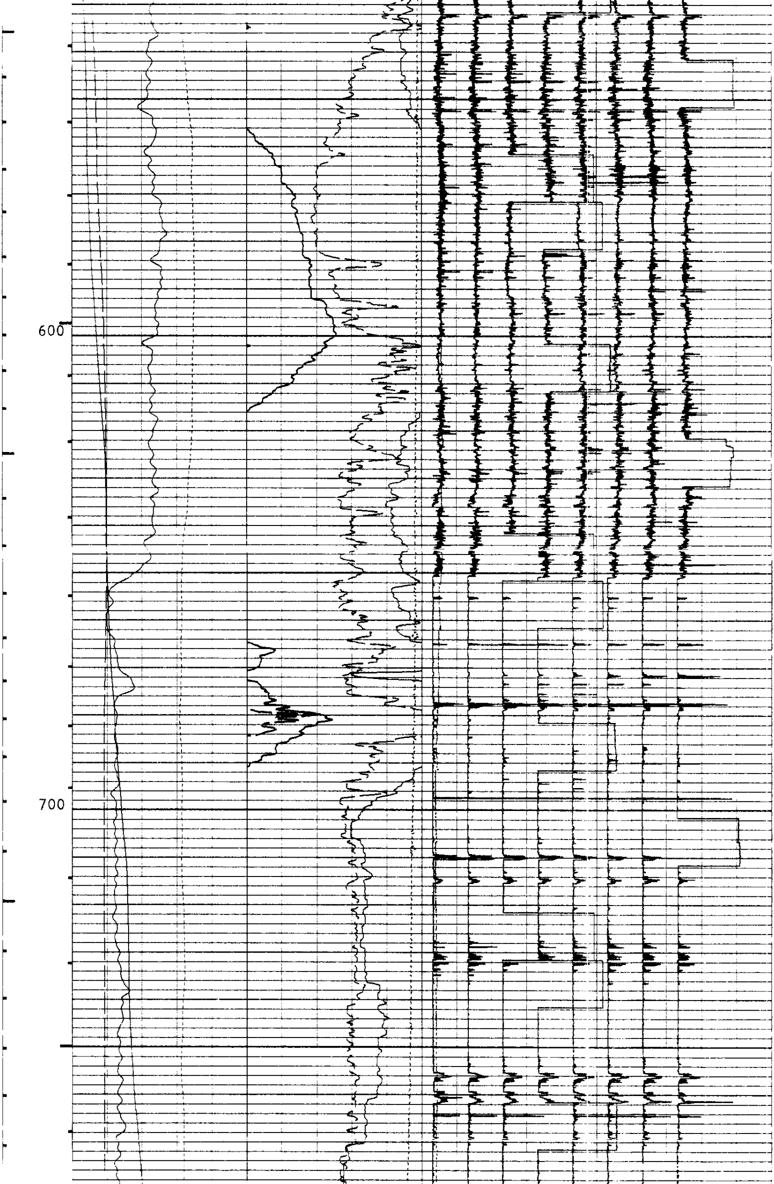
Curve	Left	Right
GR(GAPI)	0.0	150.00
P1AZ(DEG)	-40.00	360.00
AZIM(DEG)	-40.00	360.00
DEVI(DEG)	0.0	50.000

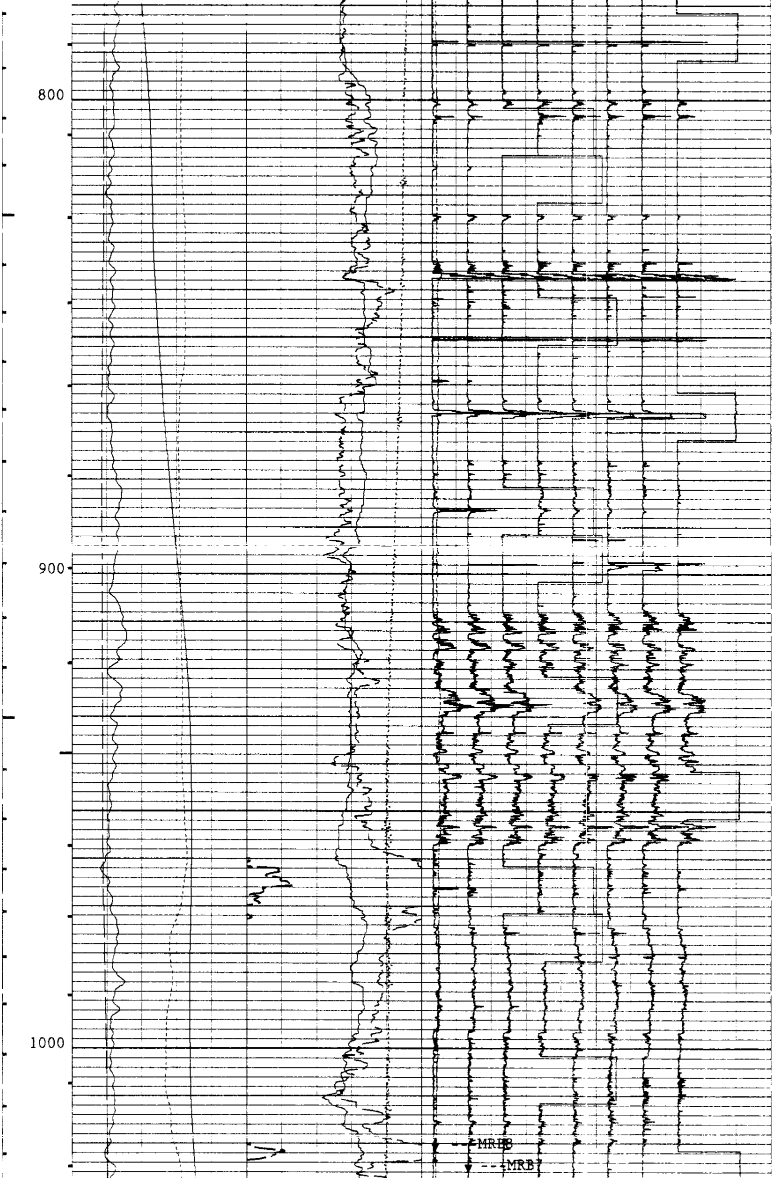
Curve	Left	Right
AZ(M/S2)	0.0	10.000
C2(IN)	10.000	15.000
C1(IN)	10.000	15.000

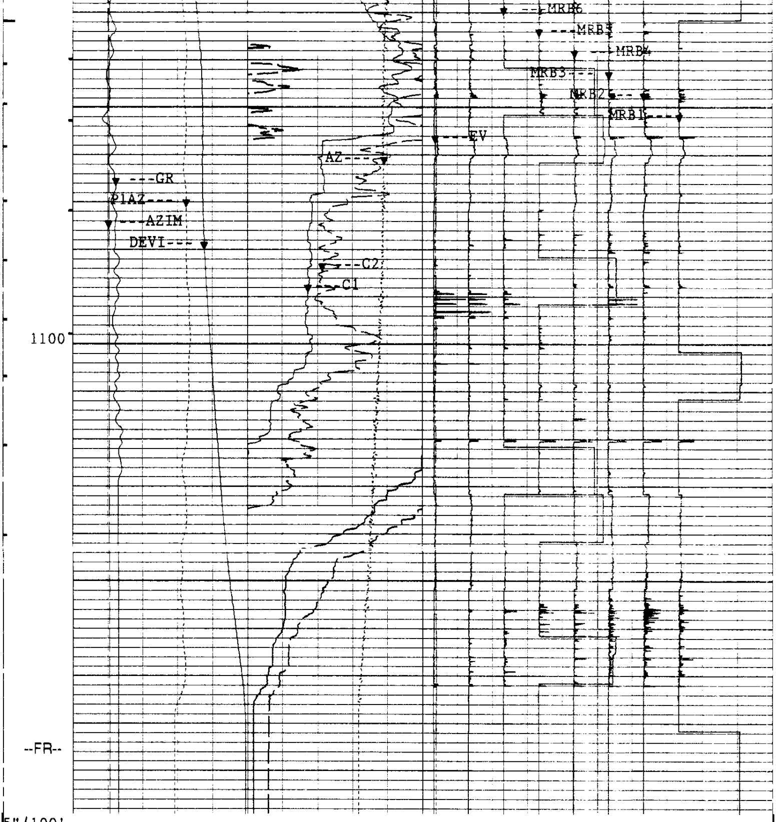
Curve	Left	Right
EV(V)	0.0	5.0000
MRB8	-1000.	19000.
MRB7	-3000.	17000.
MRB6	-5000.	15000.
MRB5	-7000.	13000.
MRB4	-9000.	11000.
MRB3	-11000	9000.0
MRB2	-13000	7000.0
MRB1	-15000	5000.0

CP 44.2 FILE 63 16-JAN-1998 07:38 (UP)









5"/100'

CP 44.2 FILE 63 16-JAN-1998 06:57 (UP)

EV(V)	
0.0	5.0000
MRB8	
-1000.	19000.
MRB7	
-3000.	17000.
MRB6	
-5000.	15000.
MRB5	

							-7000.	13000
GR(GAPI)	0 0	150 00				MRB4	-9000.	11000
P1AZ(DEG)	-40.00	360.00	AZ(M/S2)	0.0	10.000	MRB3	-11000	9000.0
AZIM(DEG)	-40 00	360.00	C2(IN)	10 000	15.000	MRB2	-13000	7000 0
DEV (DEG)	0.0	50.000	C1(IN)	10 000	15.000	MRB1	-15000	5000 0

SENSOR MEASURE POINT TO TOOL ZERO

CNTC	48.2	FEET	CFTC	48.7	FEET
LL	31.1	FEET	LITH	31.1	FEET
LU	31.1	FEET	LS	31.1	FEET
SS1	30.6	FEET	PARI	30.6	FEET
GR	59.7	FEET	SS2	30.6	FEET
TENS	-10.9	FEET	CALI	31.2	FEET
C2	2.2	FEET	C1	2.2	FEET
MRPD	2.2	FEET	MDRB	2.2	FEET
MRPB	2.2	FEET	MRPC	2.2	FEET
AX	1.1	FEET	MRPA	2.2	FEET
AZ	1.1	FEET	AY	1.1	FEET
FY	1.1	FEET	FX	1.1	FEET
FCAX	1.1	FEET	FZ	1.1	FEET
FCAZ	1.1	FEET	FCAY	1.1	FEET
TNRA	49.2	FEET	FTIM	1.1	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PADT	0.0	DEG	WMUD	9.80000	LB/G
NCJT	GSRY		DHC	BS	
BFM	LIQU		NPDC	0	
HSCO	YES		SOCO	NO	
MCCO	NO		BSCO	NO	
FSCO	NO		MWCO	NO	
PTCO	NO		CCCO	NO	
SDAT	SOCN		MCOR	NATU	
SOCN	.500000	IN	FSAL	-50000.0	PPM
ANGL	0.0	DEG	GGRD	.0100000	DF/F
BHFL	WATE		MDEN	2.65000	G/C3
FD	1.00000	G/C3	FCSR	0.1"	
AFMO	HAMM		ICMO	AUTO	
MDEC	18.6240	DEG	GLM	DIPM	
ICSD	-50000.0	F	RBS	AUTO	
PTYP	MEC		MLM	1800	
SOFF	-1.00000	IN	CSR	.6"	
ODFO	RAW		XMOD	AUTO	
XGAI	3		XOFF	0	
DPPM	STAN		MATR	SAND	
HC	CALI		FCD	8.67500	IN
SPCR	DISA		DSCA	40	DEG
SBUT	8		INT	4.00000	F
STEP	2.00000	F	SPAN	4	
SANG	35.0000		DPAD	AUTO	
DMAX	90	DEG	ELRA	.500000	IN
SDFA	.900000		HQUA	14	
LQUA	6		STDI	0.0	DEG
STDA	0.0	DEG	CSBL	2	
STEM	45.0000	DEGF	DFD	10.0000	LB/G
RMFS	.880000	OHMM	RMS	1.51000	OHMM
MST	85.0000	DEGF	MFST	68.0000	DEGF
BS	12.2500	IN	BHS	OPEN	

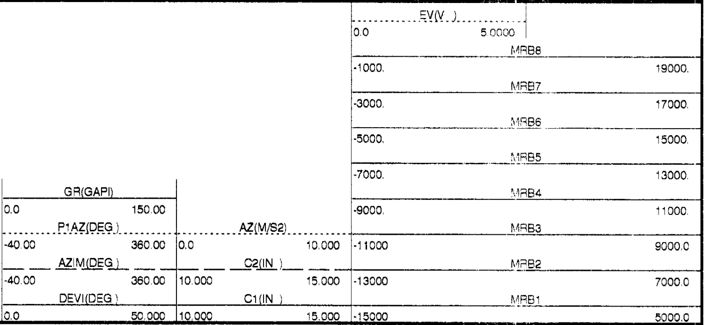
SPEED CORRECTION NOT APPLIED

ACCUMULATED INTEGRATION VALUES SUMMARY:

```
Integrated Hole Volume:   513.912 F3    FROM 1993.00 F    TO 1054.00 F
Integrated Cement Volume: 128.699 F3    FROM 1993.00 F    TO 1054.00 F
  (ASSUMING 8.67500 IN   O.D. CASING)
```

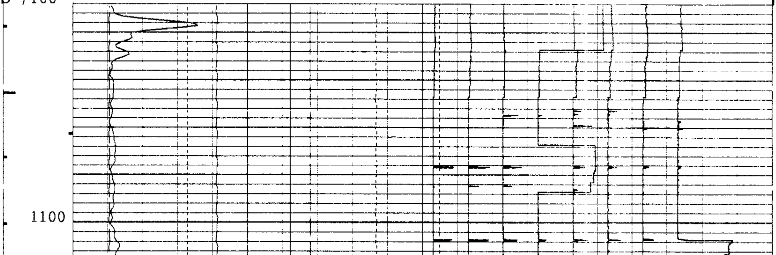
EVENT MARK SUMMARY:

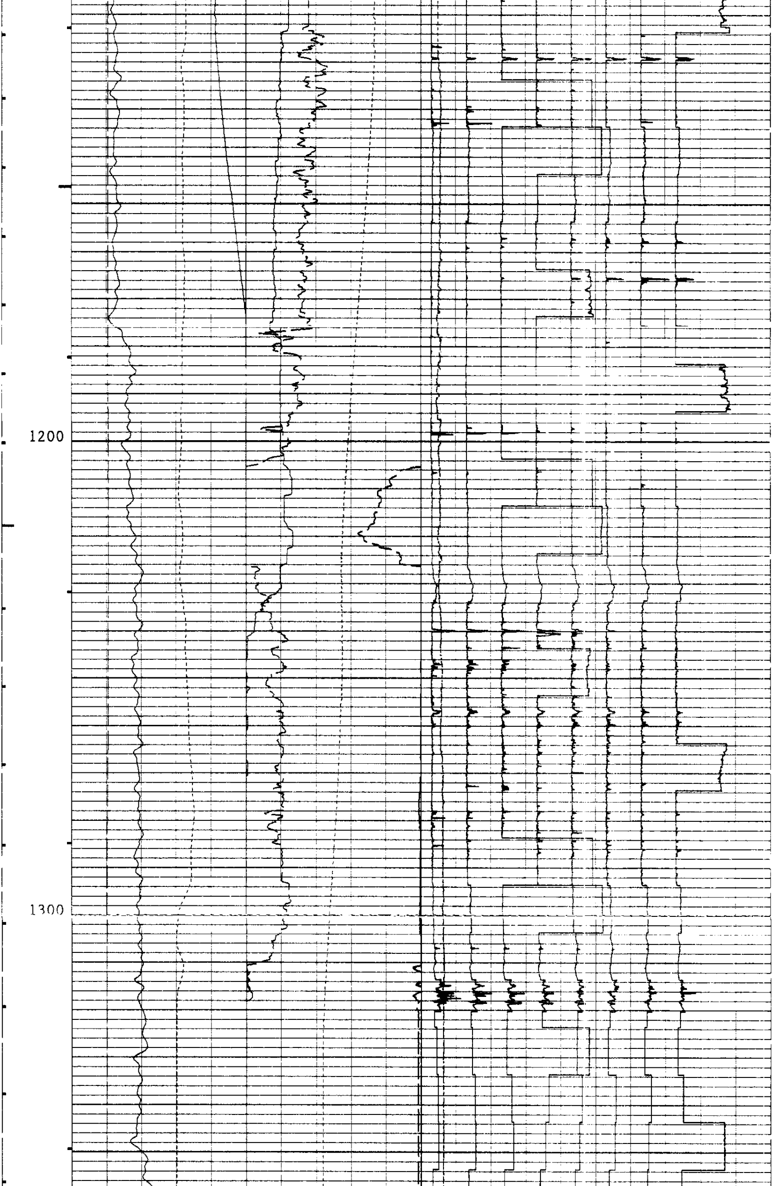
OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
Integrated Hole Volume	10.0000 F3	LEFT EDGE
Integrated Cement Volume	10.0000 F3	RIGHT EDGE

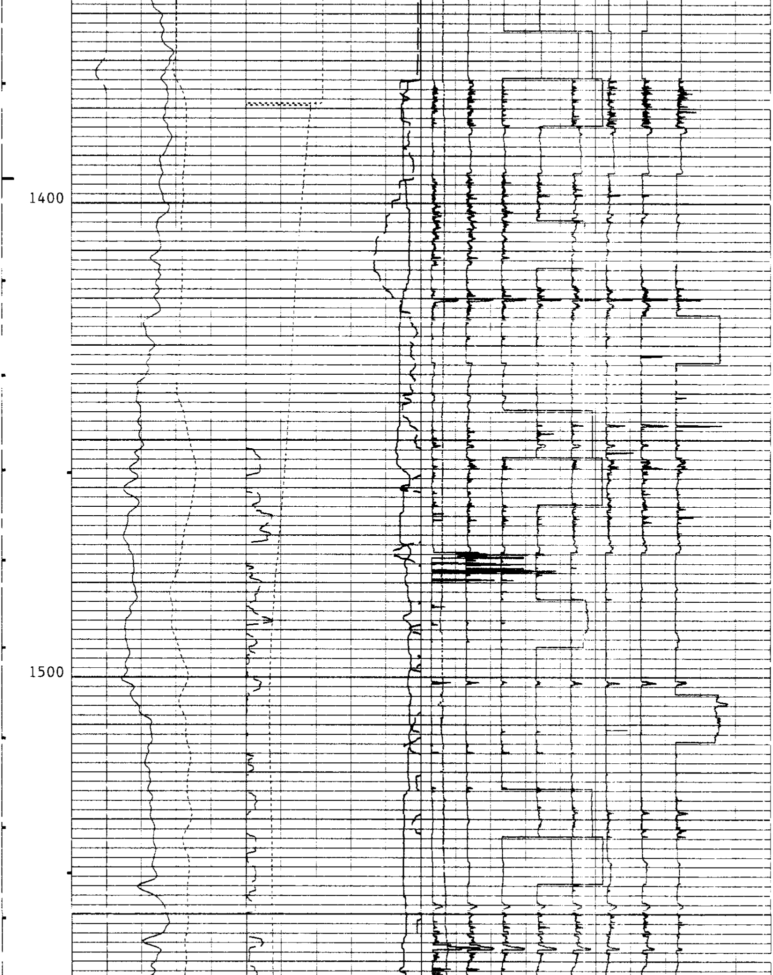


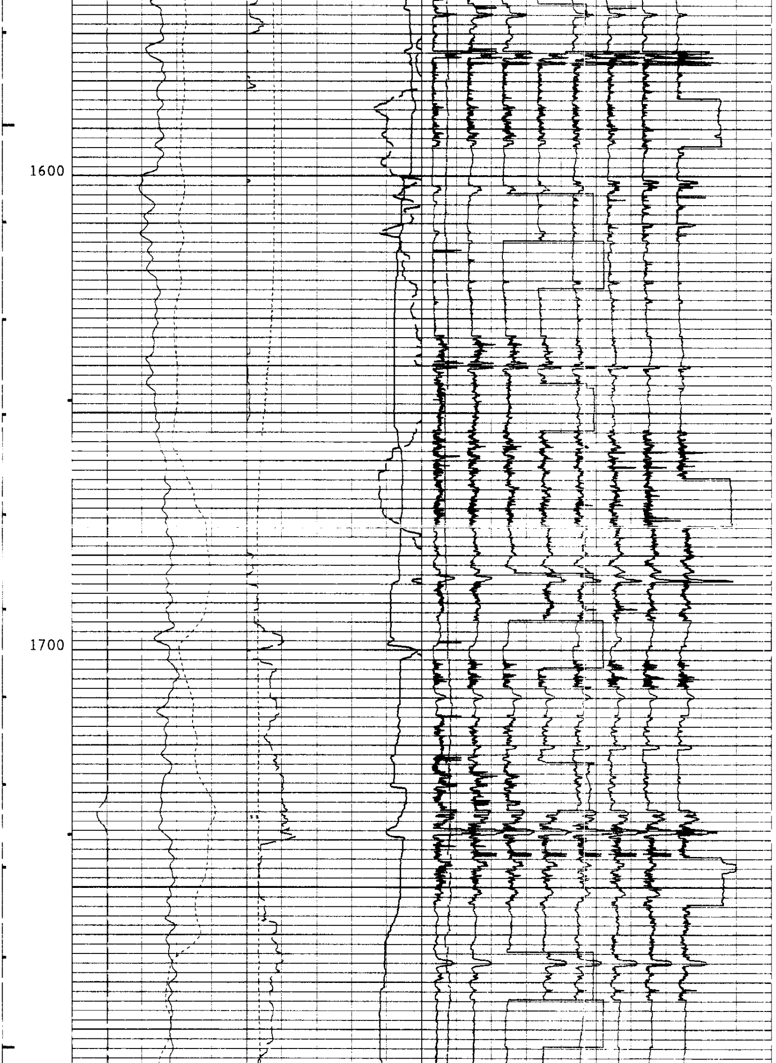
CP 44.2　　FILE 88　　17-JAN-1998 08:25　　(UP)

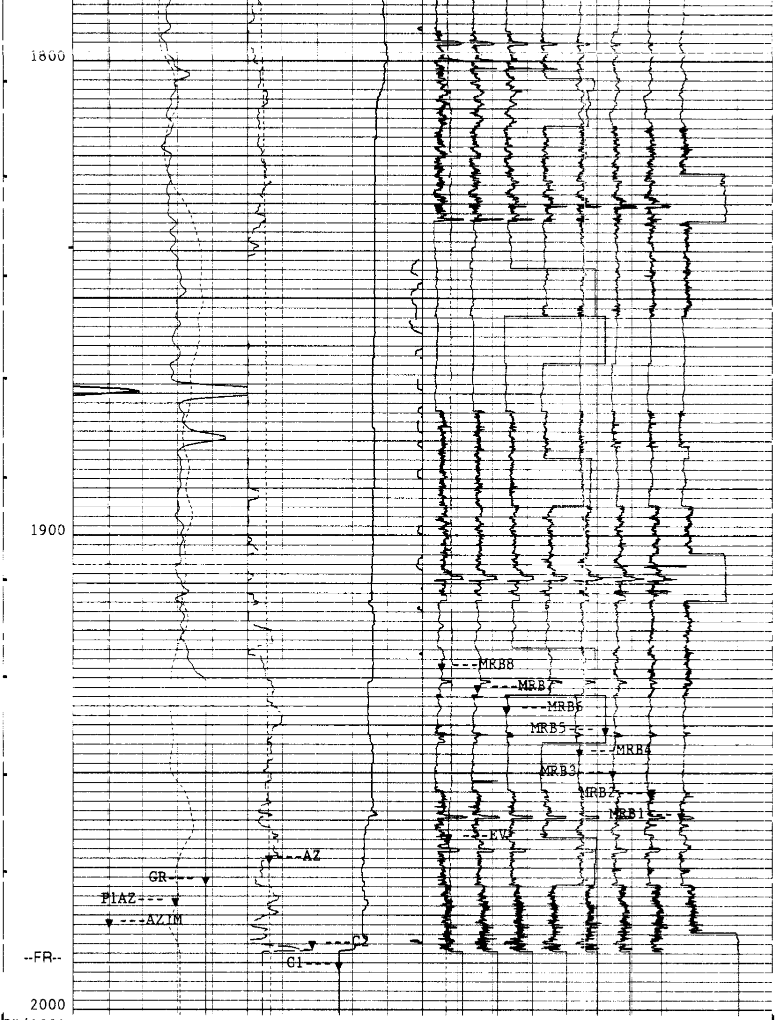
5"/100'











5"/100'

CP 44.2 FILE 88 17-JAN-1998 06:49 (UP)

						EV(V.)	0.0	5.0000
						MRB8	-1000.	19000
						MRB7	-3000.	17000
						MRB6	-5000.	15000
						MRB5	-7000.	13000.
GR(GAPI)	0.0	150.00				MRB4	-9000.	11000.
P1AZ(DEG.)	-40.00	360.00	AZ(M/S2)	0.0	10.000	MRB3	-11000	9000.0
AZIM(DEG.)	-40.00	360.00	C2(IN.)	10.000	15.000	MRB2	-13000	7000.0
DEVI(DEG.)	0.0	50.000	C1(IN.)	10.000	15.000	MRB1	-15000	5000.0

SENSOR MEASURE POINT TO TOOL ZERO

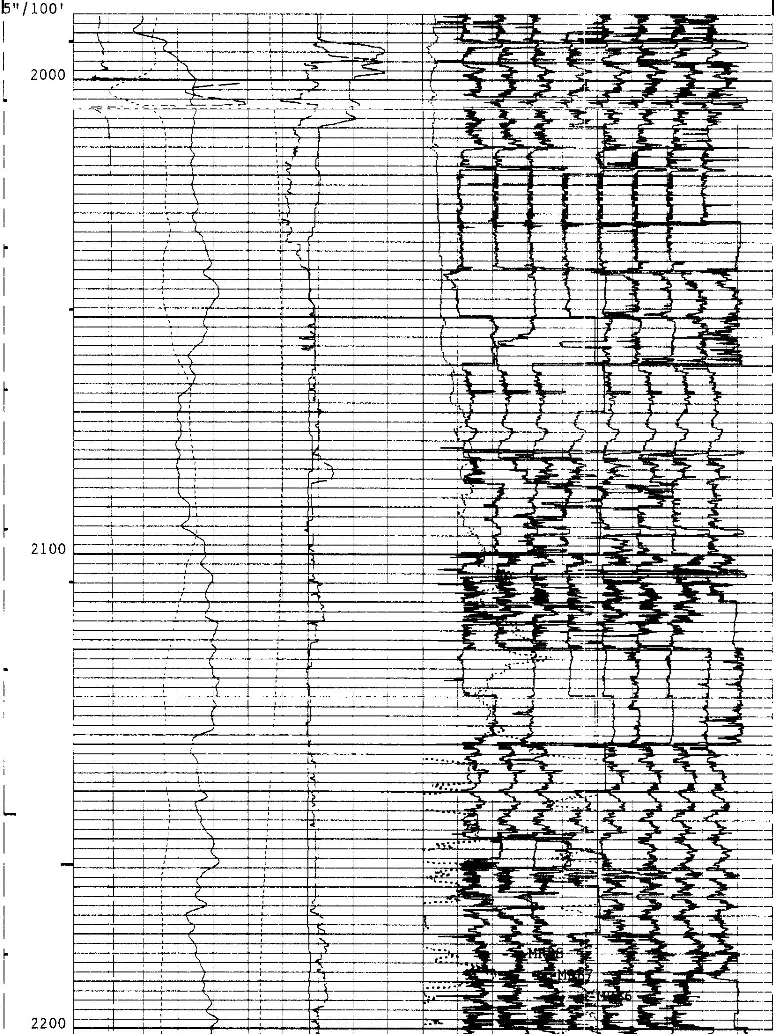
LDTD	31.2	FEET	SGTL	59.7	FEET
MESTC	2.2	FEET	DTT	-10.9	FEET
CNTH	49.2	FEET	GPIT	1.1	FEET
AMS	68.9	FEET			

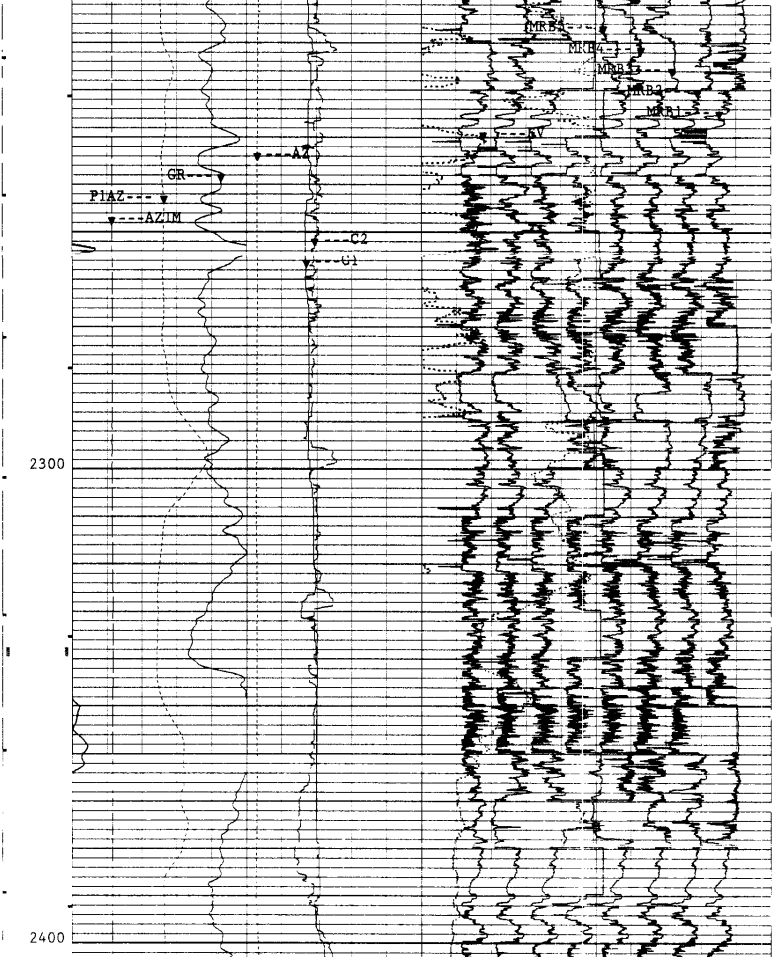
PARAMETERS

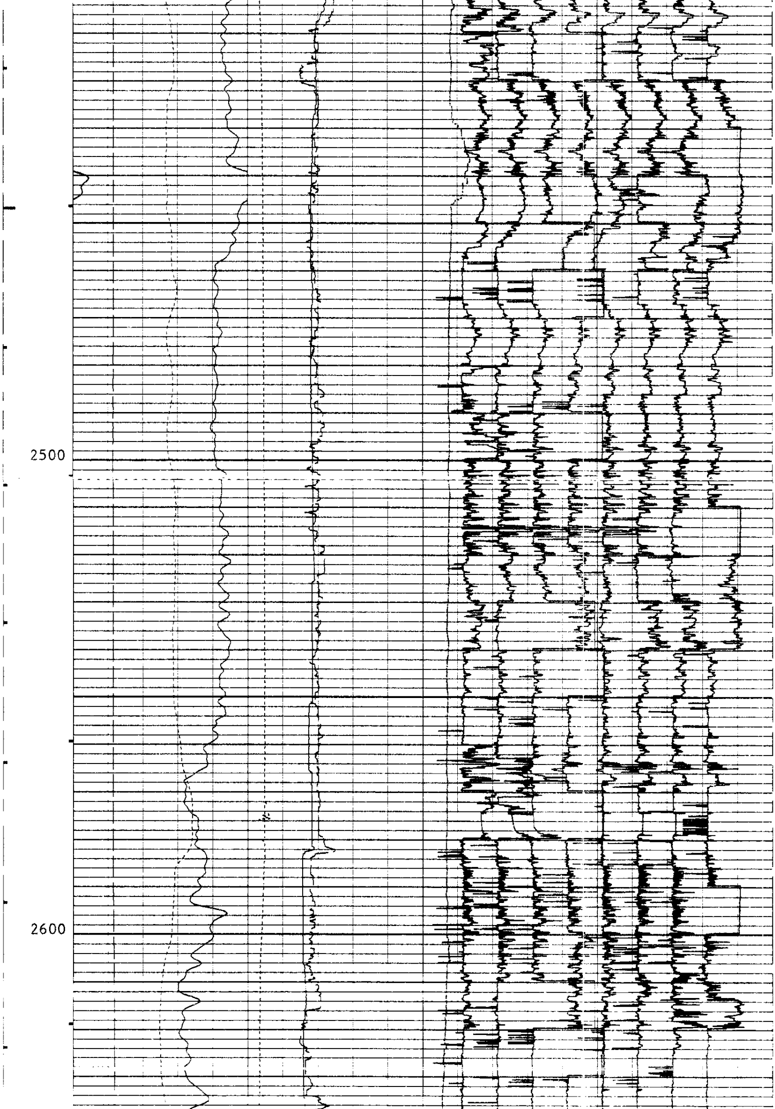
NAME	VALUE	UNIT	NAME	VALUE	UNIT
PADT	0.0	DEG	WMUD	9.80000	LB/G
NCJT	GSRY		DHC	BS	
BFM	LIQU		NPDC	0	
HSCO	YES		SOCO	NO	
MCCO	NO		BSCO	NO	
FSCO	NO		MWCO	NO	
PTCO	NO		CCCO	NO	
SDAT	SOCN		MCOR	NATU	
SOCN	.500000	IN	FSAL	-50000.0	PPM
ANGL	0.0	DEG	GGRD	.0100000	DF/F
BHFL	WATE		MDEN	2.65000	G/C3
FD	1.00000	G/C3	FCSR	0.1"	
AFMO	HAMM		ICMO	AUTO	
MDEC	18.6240	DEG	GLM	DIPM	
ICSD	-50000.0	F	RBS	AUTO	
PTYP	MEC		MLM	1800	
SOFF	-1.00000	IN	CSR	.6"	
ODFO	RAW		XMOD	AUTO	
XGAI	3		XOFF	0	
DPPM	STAN		MATR	SAND	
HC	CALI		DTCI	0.0	F
FCD	8.67500	IN	SPCR	DISA	
DSCA	40	DEG	SBUT	8	
INT	4.00000	F	STEP	2.00000	F
SPAN	4		SANG	35.0000	
DPAD	AUTO		DMAX	90	DEG
ELRA	.500000	IN	SDFA	.900000	
HQUA	14		LQUA	6	
STDI	0.0	DEG	STDA	0.0	DEG
CSBL	2		DFD	9.80000	LB/G
RMFS	1.56000	OHMM	MFST	62.0000	DEGF
BS	12.2500	IN	BHS	OPEN	

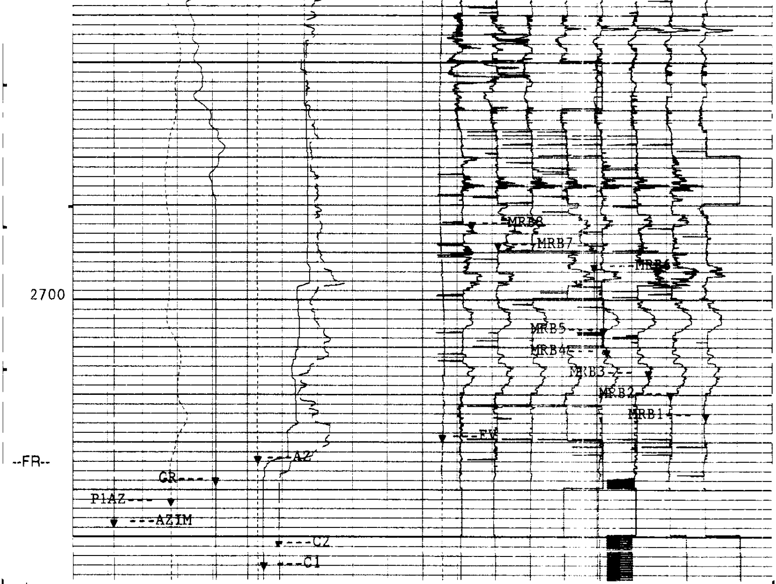
CP 44.2 FILE 107 23-JAN-1998 17:49

INPUT FILE(S) CREATION DATE
102 23-JAN-1998 14:57









5"/100'

CP 44.2 FILE 107 23-JAN-1998 17:04

INPUT FILE(S) 101

CREATION DATE 23-JAN-1998 13:32

EV(V) 0.0 5.0000

MRB8 -1000. 19000.

MRB7 -3000. 17000.

MRB6 -5000. 15000.

MRB5 -7000. 13000.

MRB4 -9000. 11000.

MRB3 -11000 9000.0

MRB2 -13000 7000.0

MRB1 -15000 5000.0

GR(GAPI) 0.0 150.00

P1AZ(DEG) -40.00 360.00

AZIM(DEG) -40.00 360.00

DEVI(DEG) 0.0 50.000

AZ(M/S2) 0.0 10.000

C2(IN) 6.0000 11.000

C1(IN) 6.0000 11.000

SENSOR MEASURE POINT TO TOOL ZERO

DTT -2.9 FEET
GPIT 1.1 FEET
AMS 39.2 FEET

SGTL 30.0 FEET
MESTC 1.1 FEET

```
                              PARAMETERS

     NAME  VALUE       UNIT                NAME  VALUE       UNIT

     PADT .500000      DEG                 PP    NORM
     DO    4.00000     F                   NCJT GSRY
     FCSR 0.1"                             AFMO HAMM
     ICMO AUTO                             MDEC 18.6240      DEG
     GLM   DIPM                            ICSD -50000.0     F
     RBS   AUTO                            PTYP MEC
     MLM   1800                            SOFF -1.00000     IN
     CSR   .6"                             ODFO LIS
     XMOD AUTO                             XGAI 3
     XOFF 0                                DTCI 0.0          F
     FCD   5.50000     IN                  SPCR DISA
     DSCA 40           DEG                 SBUT 8
     INT   4.00000     F                   STEP 2.00000      F
     SPAN 4                                SANG 35.0000
     DPAD AUTO                             DMAX 90           DEG
     ELRA .500000      IN                  SDFA .900000
     HQUA 14                               LQUA 6
     STDI 0.0          DEG                 STDA 0.0          DEG
     CSBL 2                                BS    7.87500     IN
     BHS   OPEN
```

REPEAT SECTION

```
          SPEED CORRECTION NOT APPLIED
```

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ACCUMULATED INTEGRATION VALUES SUMMARY:

Integrated Hole Volume:   278.351 F3    FROM 654.000 F    TO 392.500 F
Integrated Cement Volume: 171.222 F3    FROM 654.000 F    TO 392.500 F
  (ASSUMING 8.67500 IN    O.D. CASING)
```
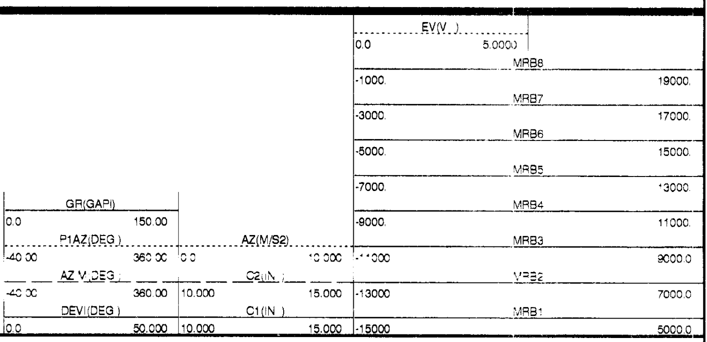
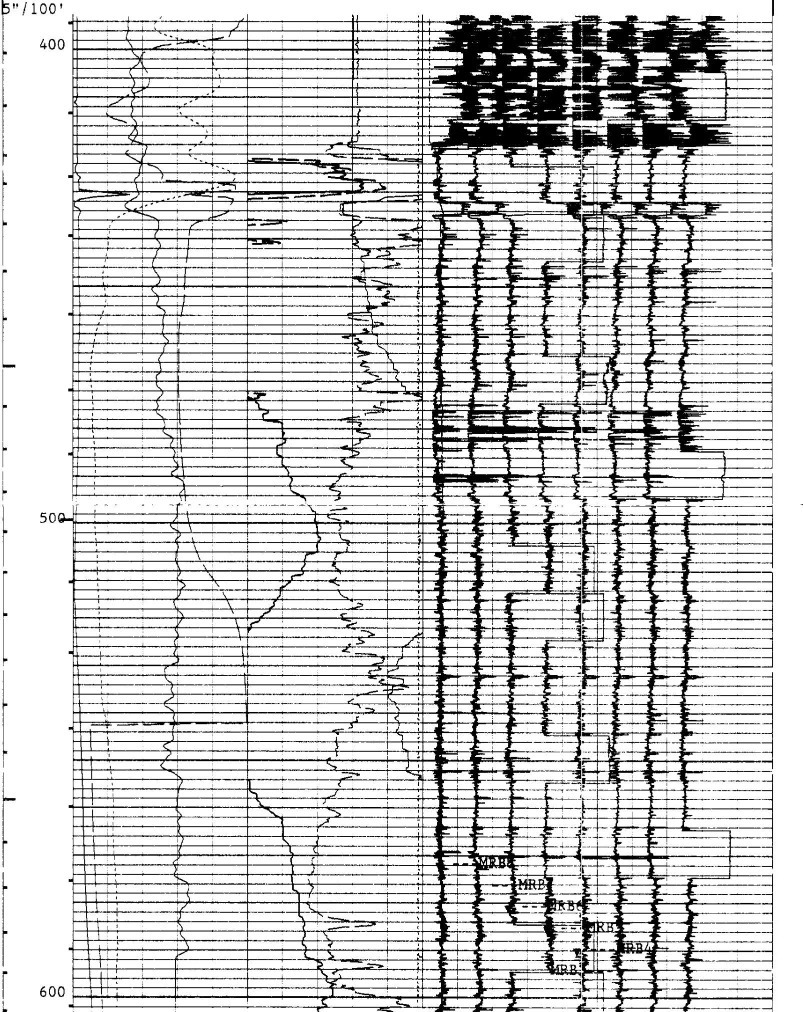
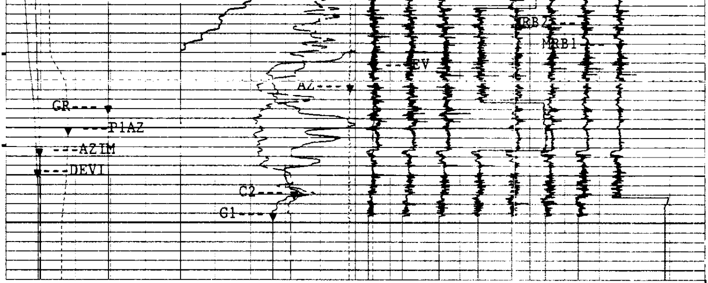

```
EVENT MARK SUMMARY:

OUTPUT                       INTERVAL        DEPTH TRACK
                             BETWEEN PIPS    EDGE

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



CP 44.2 FILE 64 16-JAN-1998 07:58 (UP)





5"/100'

CP 44.2 FILE 64 16-JAN-1998 07:43 (UP)

Curve	Left	Right
GR(GAPI)	0.0	150.00
P1AZ(DEG)	-40.00	360.00
AZIM(DEG)	-40.00	360.00
DEVI(DEG)	0.0	50.000
AZ(M/S2)	0.0	10.000
C2(IN)	10.000	15.000
C1(IN)	10.000	15.000
EV(V)	0.0	5.0000
MRB8	-1000.	19000.
MRB7	-3000	17000.
MRB6	-5000.	15000.
MRB5	-7000.	13000.
MRB4	-9000.	11000.
MRB3	-11000	9000.0
MRB2	-13000	7000.0
MRB1	-15000	5000.0

SENSOR MEASURE POINT TO TOOL ZERO

CNTC	48.2	FEET	CFTC	48.7	FEET
LL	31.1	FEET	LITH	31.1	FEET
LU	31.1	FEET	LS	31.1	FEET
SS1	30.6	FEET	PARI	30.6	FEET
GR	59.7	FEET	SS2	30.6	FEET
TENS	-10.9	FEET	CALI	31.2	FEET
C2	2.2	FEET	C1	2.2	FEET
MRPD	2.2	FEET	MDRB	2.2	FEET
MRPB	2.2	FEET	MRPC	2.2	FEET
AX	1.1	FEET	MRPA	2.2	FEET
AZ	1.1	FEET	AY	1.1	FEET
FY	1.1	FEET	FX	1.1	FEET
FCAX	1.1	FEET	FZ	1.1	FEET
FCAZ	1.1	FEET	FCAY	1.1	FEET
TNRA	49.2	FEET	FTIM	1.1	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PADT	0.0	DEG	WMUD	9.80000	LB/G
NCJT	GSRY		DHC	BS	
BFM	LIQU		NPDC	0	
HSCO	YES		SOCO	NO	
MCCO	NO		BSCO	NO	
FSCO	NO		MWCO	NO	
PTCO	NO		CCCO	NO	
SDAT	SOCN		MCOR	NATU	
SOCN	.500000	IN	FSAL	-50000.0	PPM
ANGL	0.0	DEG	GGRD	.0100000	DF/F
BHFL	WATE		MDEN	2.65000	G/C3
FD	1.00000	G/C3	FCSR	0.1"	
AFMO	HAMM		ICMO	AUTO	
MDEC	18.6240	DEG	GLM	DIPM	
ICSD	-50000.0	F	RBS	AUTO	
PTYP	MEC		MLM	1800	
SOFF	-1.00000	IN	CSR	.6"	
ODFO	RAW		XMOD	AUTO	
XGAI	3		XOFF	0	
DPPM	STAN		MATR	SAND	
HC	CALI		FCD	8.67500	IN
SPCR	DISA		DSCA	40	DEG
SBUT	8		INT	4.00000	F
STEP	2.00000	F	SPAN	4	
SANG	35.0000		DPAD	AUTO	
DMAX	90	DEG	ELRA	.500000	IN
SDFA	.900000		HQUA	14	
LQUA	6		STDI	0.0	DEG
STDA	0.0	DEG	CSBL	2	
STEM	45.0000	DEGF	DFD	10.0000	LB/G
RMFS	.880000	OHMM	RMS	1.51000	OHMM
MST	85.0000	DEGF	MFST	68.0000	DEGF
BS	12.2500	IN	BHS	OPEN	

COMPANY	NORTHWEST NATURAL GAS CO.			**SCHL.**	**FR**	2725.0 F
				SCHL.	**TD**	2735.0 F
WELL	IW 22DH-22-65			**DRLR.**	**TD**	2746.0 F
FIELD	MIST GAS STORAGE			**Elev:**	**KB**	595.7 F
					DF	
COUNTY:	COLUMBIA	**STATE:**	OREGON		**GL**	579.7 F

Schlumberger

FORMATION MICROSCANNER GAMMA RAY