5 inch

Schlumberger

CEMENT BOND LOG
VARIABLE DENSITY
COMPENSATED NEUTRON

COUNTY	COOS
FIELD	WILDCAT
LOCATION	2130FSL & 2399FWL OF
WELL	WNS MENASHA #32-1
COMPANY	CARBON ENERGY INTERNATIONAL

COMPANY CARBON ENERGY INTERNATIONAL

WELL WNS MENASHA #32-1

FIELD WILDCAT

COUNTY COOS **STATE** OREGON

LOCATION	2130'FSL & 2399'FWL OF FROM SE CORNER OF			Other Services: CBL CNT
API SERIAL NO. 36-011-00026	SECT. 32	TWP. 26S	RANGE 13W	

Permanent Datum	GL	Elev.	165.0 F	Elev.: K.B. 183.0 F
Log Measured From	KB	18.0 F	above Perm. Datum	D.F. 182.0 F
Drilling Measured From	KB			G.L. 165.0 F

Date	14-JAN-94			
Run No.	ONE			
Depth Driller	1564.0 F			
Depth Logger (Schl.)	1550.0 F			
Btm. Log Interval	1542.0 F			
Top Log Interval	0.0 F			
Type Fluid in Hole	FORMATION WATER			
Salinity NaCl				
Density	8.30 LB/G			
Fluid Level				
Max. Rec. Temp.				
Deviation	4 DEG			
Logger on Bottom	11:52 14-JAN-94			
Equip. / Location	8271	4408		
Recorded By	ROANE THORPE			
Witnessed By	STEVE PAPPAJOHN			
BOREHOLE RECORD				
Bit Size	6 1/4"	8 3/4"		
Depth	1564.0 F	1156.0 F		
CASING & TUBING RECORD				
Size	4.5	7		
Weight	11.6000 LB/F	23.0000 LB/F		
Casing Top-Driller	1056.0 F	0.0 F		
Casing Top-Logger				
Casing Shoe-Driller	1564.0 F	1156.0 F		
Casing-Logger				

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

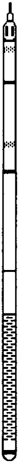
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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	
Service Order No.	454694	
Logging Speed	3600.0 F/HR	
EQUIPMENT DATA		
Tool Number 1	CNC-H 1263	
Tool Number 2	SLC-UA 114	
Tool Number 3	SLS-WA 389	
Tool Number 4	TCC-B 867	
Tool Number 5	TCM-AB 1631	
Tool Number 6	SLM-DB 1436	
Tool Number 7	SGT-L 544	
Tool Number 8	CAL-YA 197	
Tool Number 9		
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

CORRELATED TO SWS DIL-BHC 9-NOV-93
GAMMA RAY NOT SHOWN IN TOOL SKETCH

LOGGING TOOL STRING SKETCH



CALR, 3 3/8" OD

CNTA, 3 3/8" OD

SLTQ, 3 5/8" OD

		33.4 F
CCL		32.7 F
		29.9 F
		22.7 F
CBL	TT2	8.2 F

TOOL ZERO

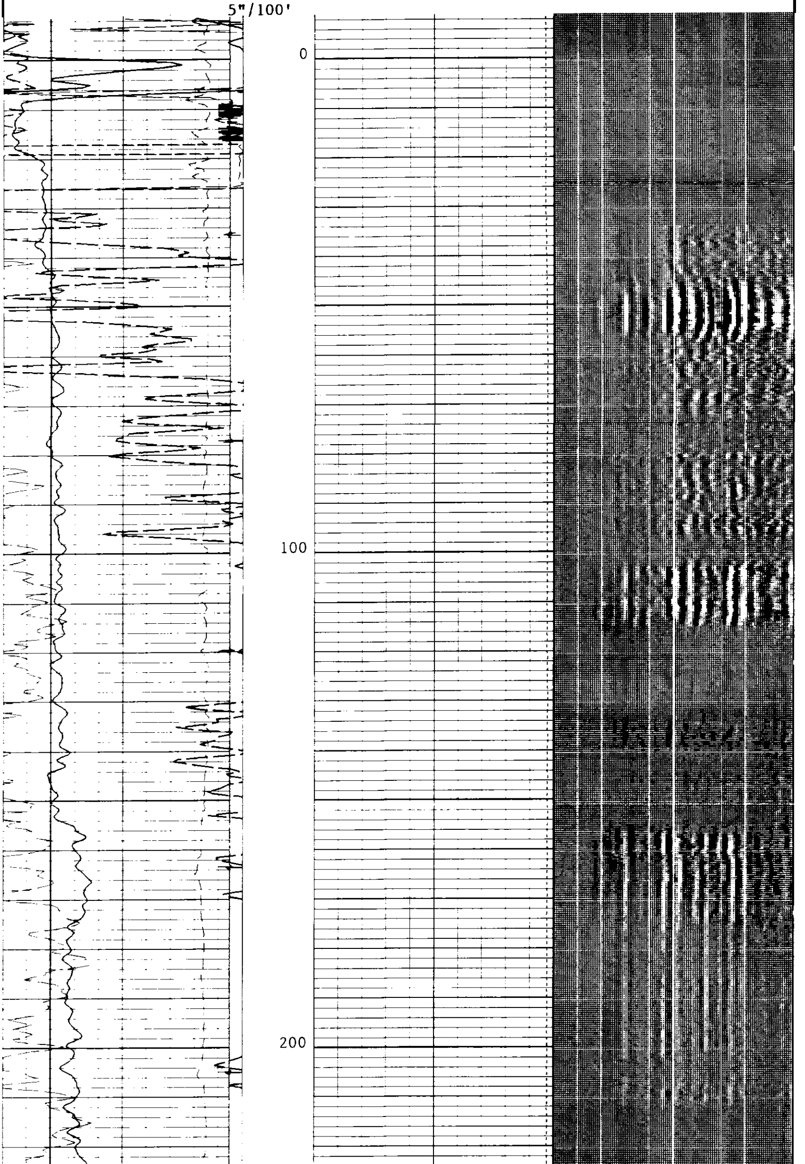
TOTAL TOOL STRING LENGTH IS 36.9 F.
TOTAL TOOL STRING WEIGHT IS 547. LB IN AIR.

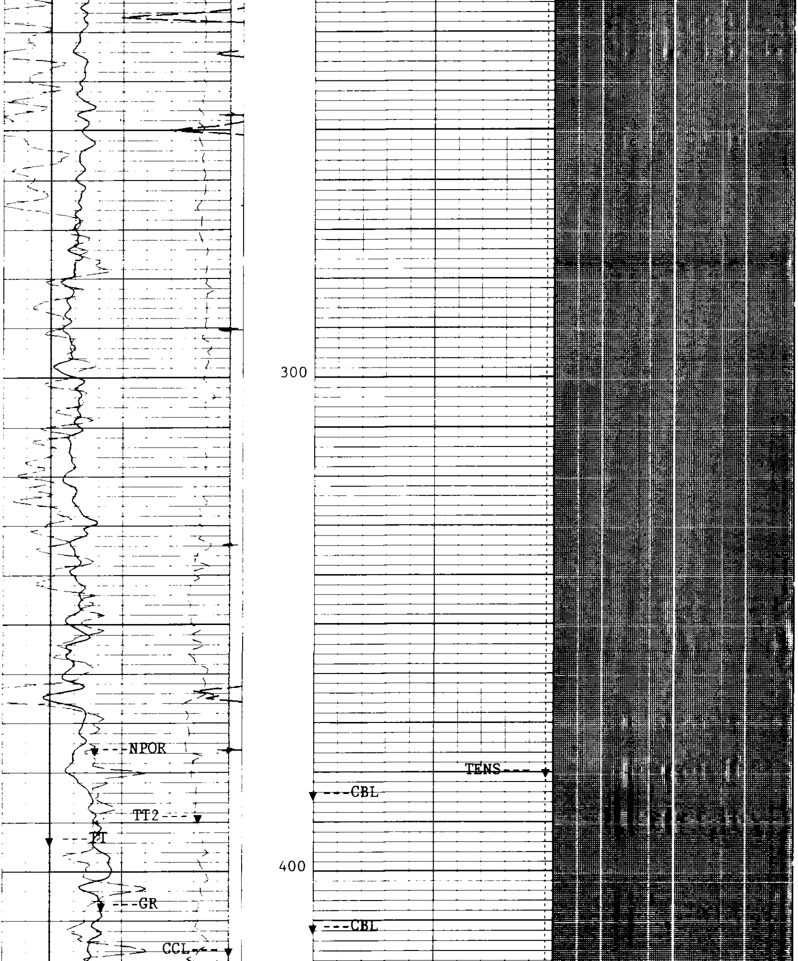
MAIN LOG

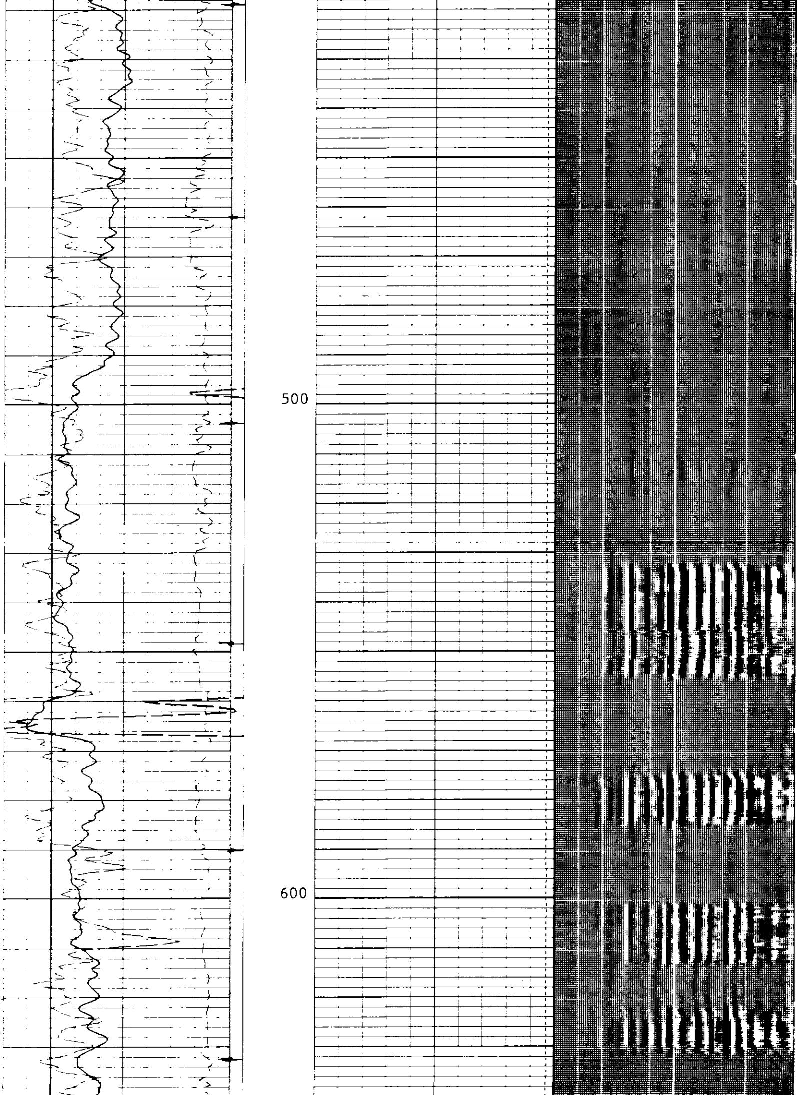
Curve	Left	Right
NPOR(V/V)	60000	0.0
TT2(US)	400.00	200 00
TT(US)	1200 0	200.00
GR(GAPI)	0.0	150.00
CCL	-19.00	1.0000
TENS(LBF)	20000	0.0
CBL(MV)	0.0	20.000
CBL(MV)	0.0	100.00
VDL(US)	200.00	1200.0

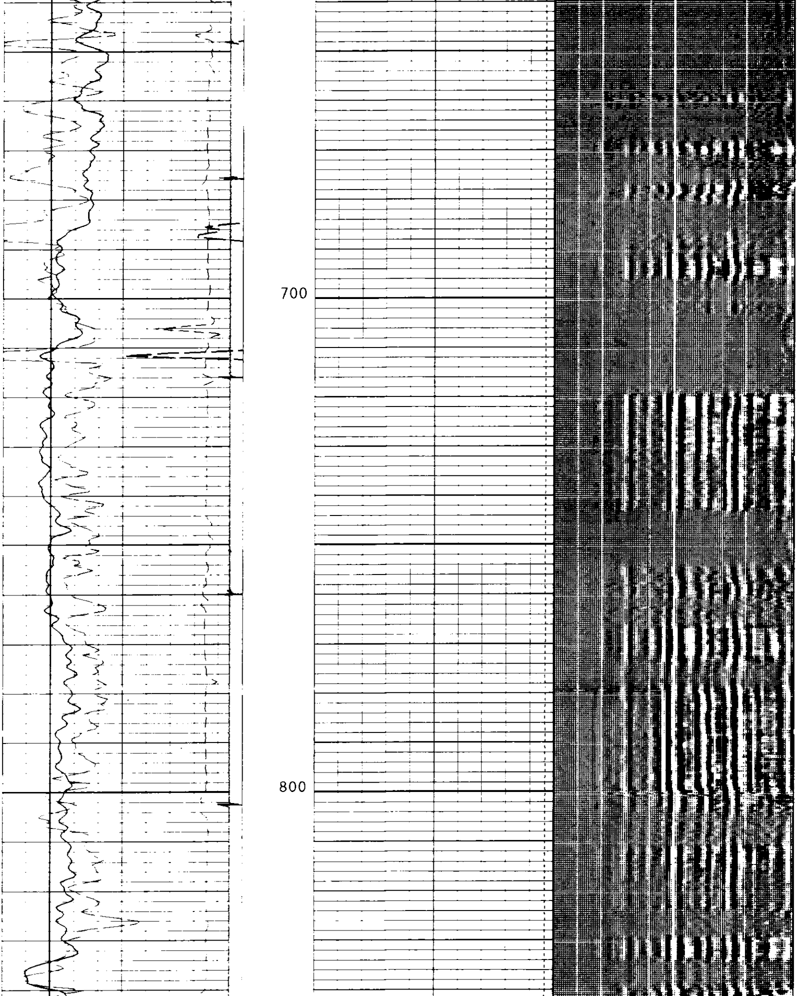
CCL -- Z1

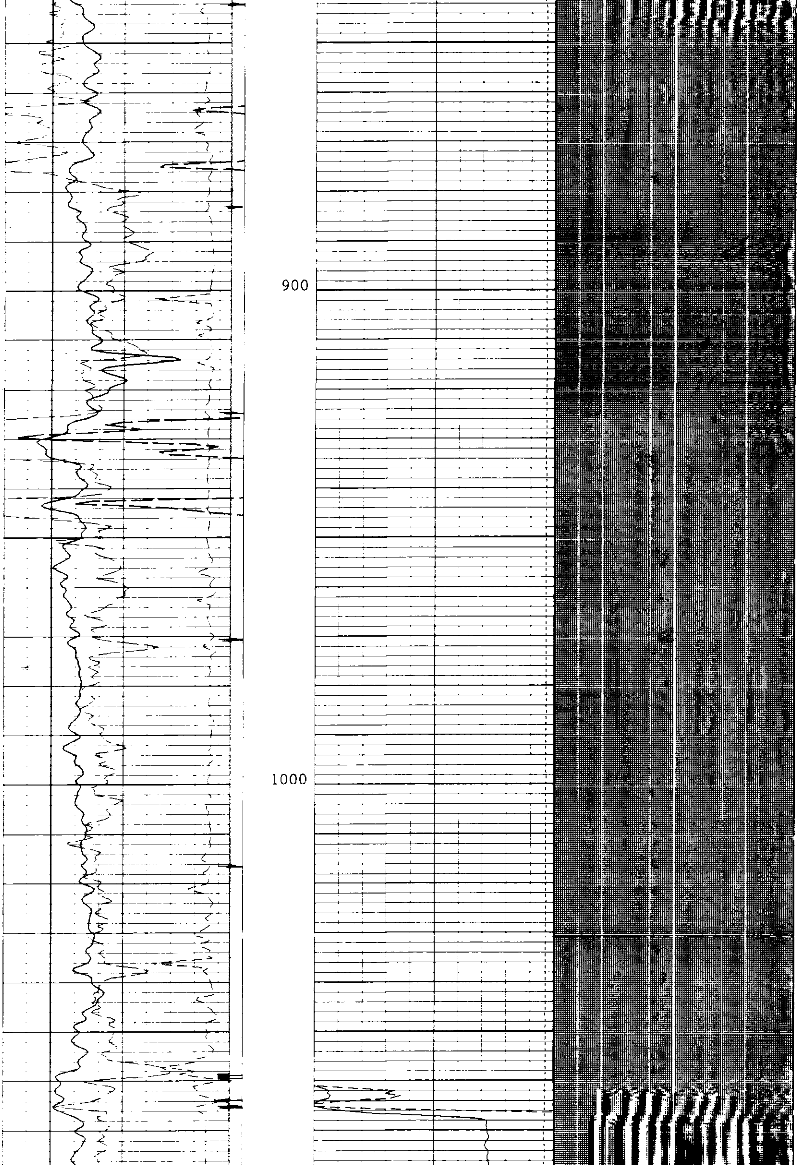
CP 38.2 FILE 5 14-JAN-1994 13:20 (UP)

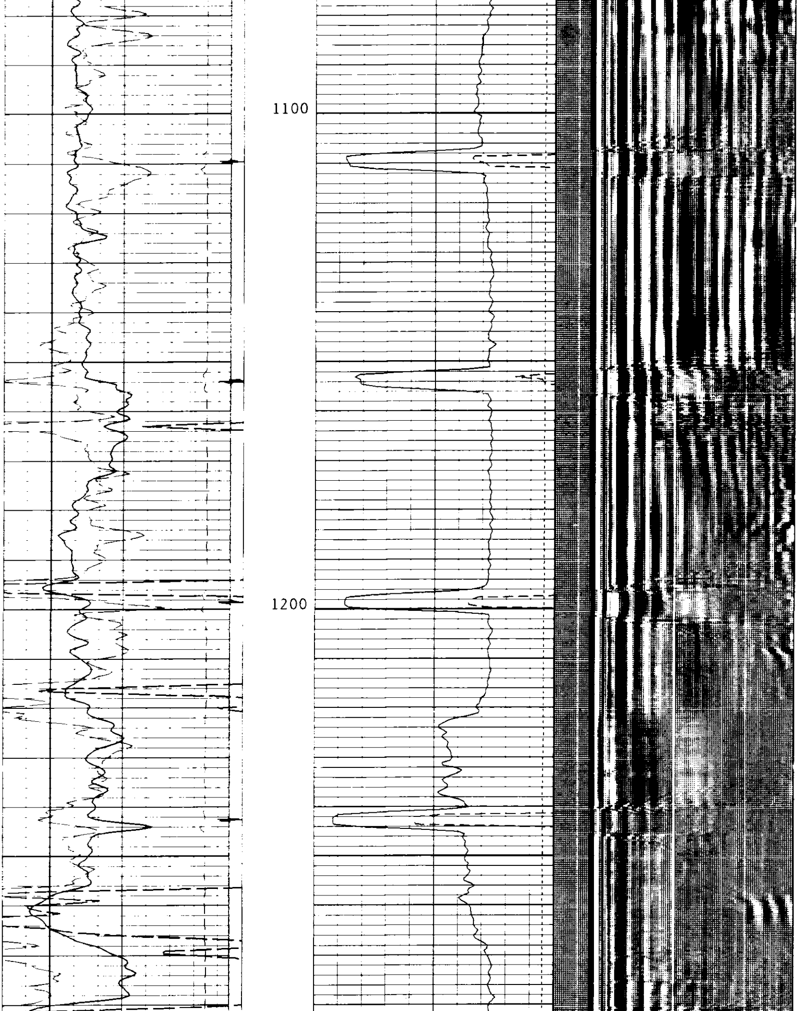


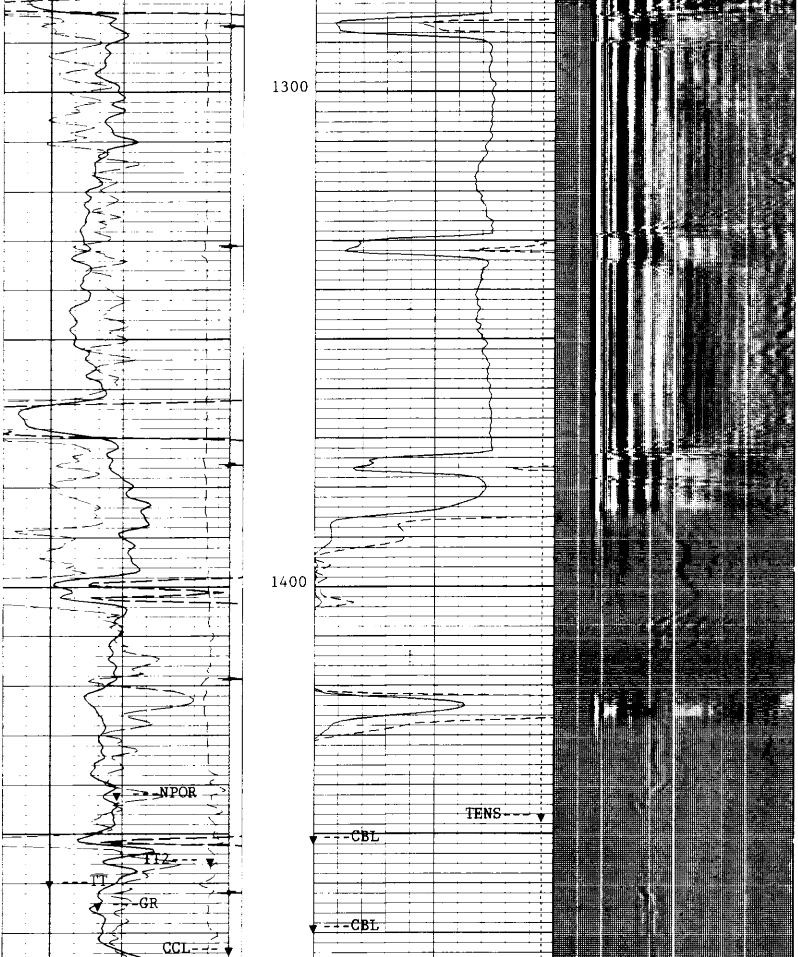


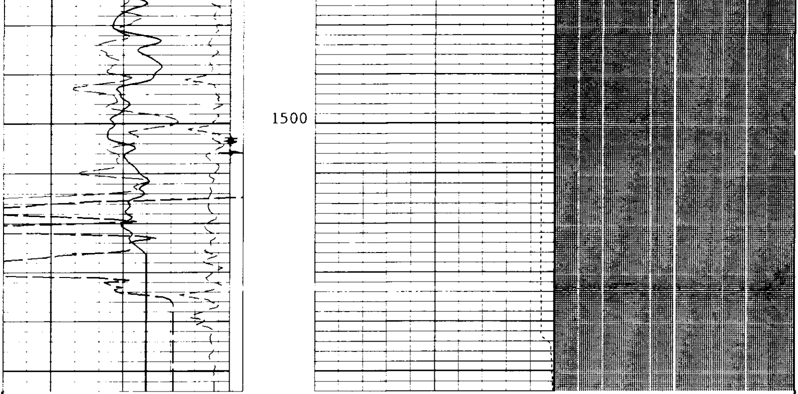






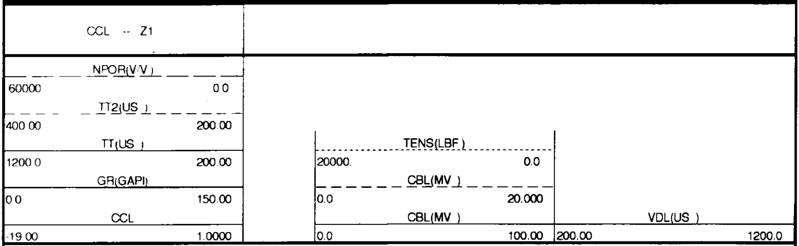






5"/100'

CP 38.2 FILE 5 14-JAN-1994 12:50 (UP)



SENSOR MEASURE POINT TO TOOL ZERO

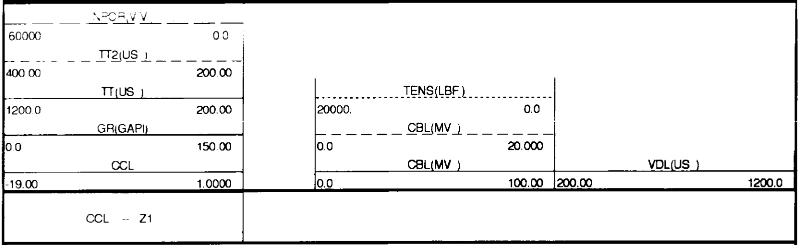
SRAT	6.3	FEET	AMPL	8.3	FEET
TT1	6.3	FEET	CBL	8.3	FEET
TT3	6.3	FEET	TT2	8.3	FEET
T0	8.3	FEET	TT4	6.3	FEET
TTSL	8.3	FEET	TT	8.3	FEET
GR	34.5	FEET	CBSL	8.3	FEET
CNTC	25.0	FEET	CFTC	25.5	FEET
CCL	41.2	FEET	TENS	6.3	FEET
NOIS	6.3	FEET	TNRA	26.0	FEET

PARAMETERS

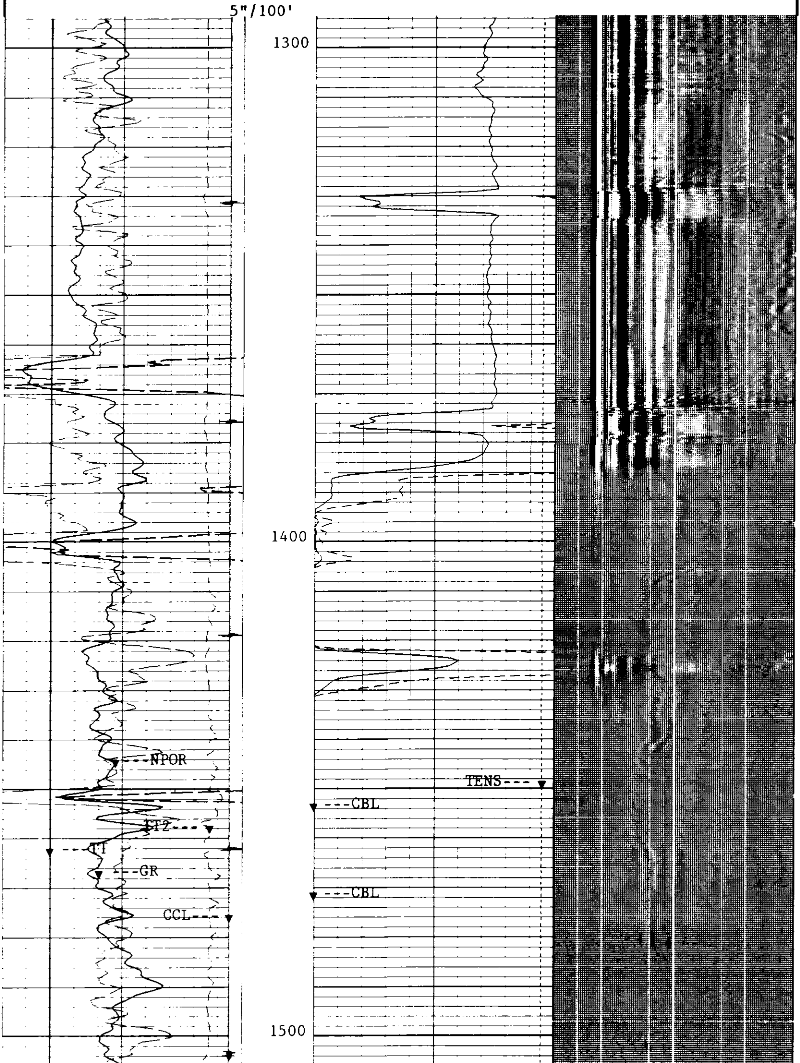
PARAMETER	VALUE	UNIT
SMB - Sonic Memory Board	ALLO	
VDLR - Defn not found	2IN	
VDLO - Defn not found	D3	
TOCA - T0 Correction Status	DISA	
RATE - Firing Rate	15	HZ
DG - Downhole Gain	/20	
DETE - Detection	E1	
NMSG - Near Minimum Sliding Gate	205	US
CBLG - CBL Gate Width	35	US

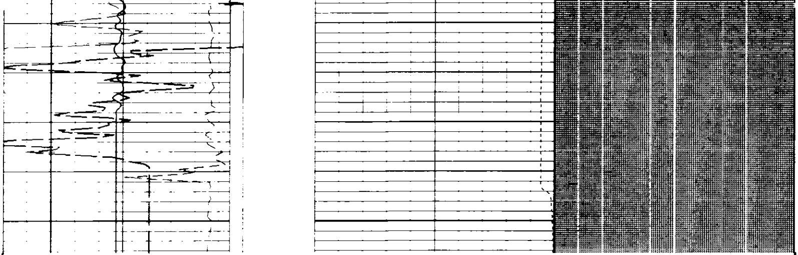
```
AMPL - Sonic Amplitude                           2
CBL  - Cement Bond Log Amplitude                 2
WFM  - Waveform Mode                             1
SS   - Sweep Speed                               MEDI
TOD  - T0 Delay                                  ALLO
SLC  - Sonic Logging Cartridge                   UA
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
DPPM - Density/Porosity Processing Mode          STAN
MATR - Matrix                                    SAND
HC   - Hole Correction Origin                    BS
NPDC - Neutron Alpha Process Depth Constant      0
HSCO - Hole Size Correction Option               YES
SOCO - Stand Off Correction Option               NO
MCCO - Mud Cake Correction Option                NO
BSCO - Borehole Salinity Correction Option       NO
FSCO - Formation Salinity Correction Option      NO
MWCO - Mud Weight Correction Option              NO
PTCO - Pressure Temperature Correction Option    NO
CCCO - Casing & Cement Correction Option for ThickNO
SDAT - Standoff Data Source                      SOCN
MCOR - Mud Correction                            NATU
SOCN - Stand Off for Compensated Neutron         .500000       IN
FSAL - Formation Salinity                        -50000.0      PPM
ANGL - Angle of Well                             0.0           DEG
GGRD - Geothermal Gradient                       .0100000      DF/F
BHFL - BoreHole Fluid Type                       WATE
NCJT - NGT Calibration Jig Type                  GSRY
CSTR - Compressive Strength of Cement            1500.00       PSIA
CWEI - Casing Weight                             11.6000       LB/F
DWCO - Digitizer Word Count                      512
DSIN - Digitizer Sample Interval                 5             US
DDEL - Digitizing Delay                          200           US
STEM - Surface Temperature                       55.0000       DEGF
DFD  - Drilling Fluid Density                    8.30000       LB/G
RMFS - Resistivity of Mud Filtrate Sample        -50000.0      OHMM
RMS  - Resistivity of Mud Sample                 -50000.0      OHMM
MST  - Mud Sample Temperature                    -50000.0      DEGF
MFST - Mud Filtrate Sample Temperature           -50000.0      DEGF
BS   - Bit Size                                  7.87500       IN
BHS  - BoreHole Status (Open or Cased)           CASE
CSIZ - Casing Size                               4.50000       IN
```

REPEAT SECTION



CP 38.2 FILE 3 14-JAN-1994 12:30 (UP)





5"/100'

CP 38.2 FILE 3 14-JAN-1994 12:24 (UP)

CCL -- Z1

NPOR(V/V)
.60000 0.0

TT2(US)
400.00 200.00

TT(US)
1200.0 200.00

GR(GAPI)
0.0 150.00

CCL
-19.00 1.0000

TENS(LBF)
20000. 0.0

CBL(MV)
0.0 20.000

CBL(MV)
0.0 100.00

VDL(US)
200.00 1200.0

SENSOR MEASURE POINT TO TOOL ZERO

SRAT	6.3	FEET	AMPL	8.3	FEET
TT1	6.3	FEET	CBL	8.3	FEET
TT3	6.3	FEET	TT2	8.3	FEET
TO	8.3	FEET	TT4	6.3	FEET
TTSL	8.3	FEET	TT	8.3	FEET
GR	34.5	FEET	CBSL	8.3	FEET
CNTC	25.0	FEET	CFTC	25.5	FEET
CCL	41.2	FEET	TENS	6.3	FEET
NOIS	6.3	FEET	TNRA	26.0	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SMB	ALLO		VDLR	2IN	
VDLO	D3		TOCA	DISA	
RATE	15	HZ	DG	/20	
DETE	E1		NMSG	205	US
CBLG	35	US	AMPL	2	
CBL	2		WFM	1	
SS	MEDI		TOD	ALLO	
SLC	UA		DTF	189.000	US/F
DTM	56.0000	US/F	CDTS	100.000	
SPFS	R-H		DPPM	STAN	
MATR	SAND		HC	BS	
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
NCJT GSRY                             CSTR 1500.00      PSIA
CWEI 11.6000      LB/F                DWCO 512
DSIN 5            US                  DDEL 200          US
STEM 55.0000      DEGF                DFD  8.30000      LB/G
RMFS -50000.0     OHMM                RMS  -50000.0     OHMM
MST  -50000.0     DEGF                MFST -50000.0     DEGF
BS   7.87500      IN                  BHS  CASE
CSIZ 4.50000      IN
```

CALIBRATION SUMMARY

```
               AFTER SURVEY TOOL CHECK SUMMARY


  PERFORMED:     14-JAN-1994 14:02
  PROGRAM FILE: TCH     (VERSION    38.2    92/10/12  92/10/12)


CNTH                       TOOL  CHECK


         INPUT    BEFORE JIG   AFTER JIG


         CNTC       2421.80      2445.78

         CFTC       1108.93      1107.75


CHANGE IN THERMAL POROSITY AT 20 PU IS    .373  PU


BEFORE SURVEY:             BACK: 14-JAN-1994 11:41   JIG: 14-JAN-1994 11:49
AFTER SURVEY CHECK:        BACK: 14-JAN-1994 13:52   JIG: 14-JAN-1994 14:00

   CP 38.2           FILE    8       14-JAN-1994 14:02



               BEFORE SURVEY CALIBRATION SUMMARY


  PERFORMED:     14-JAN-1994 11:51
  PROGRAM FILE: TCH     (VERSION    38.2    92/10/12  92/10/12)


SGTL             DETECTOR CALIBRATION SUMMARY

             MEASURED
           BKGD     JIG         CALIBRATED          UNITS
   GR       33      195            165              GAPI

BACK: 14-JAN-1994 11:41   JIG: 14-JAN-1994 11:49  COMP: 14-JAN-1994 11:50


CNTH             DETECTOR CALIBRATION SUMMARY

      NEUTRON COMPENSATED CARTRIDGE NUMBER: 1263
```

```
     NEUTRON SOURCE SERIAL NUMBER          : 1441
     THERMAL HOUSING NUMBER                : 4424
     THERMAL CALIBRATED NEUTRON BOX        : 1446

         INPUT     PLUS      SHOP      SHOP     BEFORE    GAIN
                REFERENCE    TANK      JIG       JIG
                  COUNTS    COUNTS    COUNTS    COUNTS

         CNTC    6031.00   5762.47   2439.78   2421.80   1.047
         CFTC    2793.00   2545.75   1138.58   1108.93   1.097

         RATIO     2.159     2.264     2.143     2.184


 BACK: 14-JAN-1994 11:41   JIG: 14-JAN-1994 11:49  COMP: 14-JAN-1994 11:34

    CP 38.2            FILE    2      14-JAN-1994 11:50



                  SHOP SUMMARY


  PERFORMED:     27-DEC-1993 14:44
  PROGRAM FILE: CCSHOP (VERSION    38.2    92/10/12  92/10/12)


 CNTH            DETECTOR CALIBRATION SUMMARY

     NEUTRON COMPENSATED CARTRIDGE NUMBER: 1263
     NEUTRON SOURCE SERIAL NUMBER        : 1441
     THERMAL HOUSING NUMBER              : 4424
     THERMAL CALIBRATED NEUTRON BOX      : 1446


         INPUT     PLUS      SHOP      SHOP     GAIN
                REFERENCE    TANK      JIG
                  COUNTS    COUNTS    COUNTS

         CNTC    6031.00   5762.47   2439.78   1.047
         CFTC    2793.00   2545.75   1138.58   1.097

         RATIO     2.159     2.264     2.143

         SHOP COUNTS TEMPERATURE AND HOUSING SIZE CORRECTED

 BKGD: 27-DEC-1993 14:22 TANK: 27-DEC-1993 14:31  COMP: 27-DEC-1993 14:32

    CP 38.2            FILE    2      27-DEC-1993 14:44
```

COMPANY	CARBON ENERGY INTERNATIONAL			**SCHL.**	**FR**	1542.0 F
				SCHL.	**TD**	1550.0 F
WELL	WNS MENASHA #32-1			**DRLR.**	**TD**	1564.0 F
FIELD	WILDCAT			**Elev:**	**KB**	183.0 F
					DF	182.0 F
COUNTY	COOS	**STATE**	OREGON		**GL**	165.0 F

Schlumberger

CEMENT BOND LOG
VARIABLE DENSITY
COMPENSATED NEUTRON