Schlumberger

## HIGH RESOLUTION DIPMETER

CSU

| | |
|---|---|
| COMPANY: | REICHHOLD ENERGY CORPORATION |
| WELL: | BUSCH #14-15 |
| FIELD: | MIST |
| COUNTY: | COLUMBIA |
| STATE: | OREGON |
| LOCATION: | 1187'E & 317'N OF THE<br>SW CORNER OF ... |
| SEC: | 15 TWP: 6N RGE: 5W |

OTHER SERVICES-
BHC SONIC
DIL-SFL

| | | | |
|---|---|---|---|
| PERMANENT DATUM: | GL | ELEVATIONS- | |
| ELEV. OF PERM. DATUM: | 529.0 F | KB: | 541.0 F |
| LOG MEASURED FROM: | KB | DF: | |
| 12.0 F | ABOVE PERM. DATUM | GL: | 529.0 F |
| DRLG. MEASURED FROM: | KB | | |

PROGRAM
TAPE NO:
26.2
SERVICE
ORDER NO:
432222

| | |
|---|---|
| DATE: | 8 AUG 84 |
| RUN NO: | 1 |
| DEPTH-DRILLER: | 2258.0 F |
| DEPTH-LOGGER: | 2256.0 F |
| BTM. LOG INTERVAL: | 2256.0 F |
| TOP LOG INTERVAL: | 406.0 F |
| CASING-DRILLER: | 406 F |
| CASING-LOGGER: | 406 F |
| CASING: | 8 5/8" |
| BIT SIZE: | 7 7/8" |
| DEPTH: | 2258 F |

RECEIVED [illegible]
AUG 23 1984
DEPT OF GEOLOGY

| | |
|---|---|
| TYPE FLUID IN HOLE: | GEL/LIGNO |
| DENSITY: | 12.1 LB/G |
| VISCOSITY: | 76.0 S |
| PH: | 9.0 |
| FLUID LOSS: | 4.4 C3 |
| SOURCE OF SAMPLE: | FLOWLINE |
| RM: | 1.430 OHMM AT 88.0 DEGF |
| RMF: | 1.150 OHMM AT 86.0 DEGF |
| RMC: | 1.750 OHMM AT 85.0 DEGF |
| SOURCE RMF/RMC: | MEAS/MEAS |
| RM AT BHT: | 1.318 OHMM AT 96.0 DEGF |
| RMF AT BHT: | 1.038 OHMM AT 96.0 DEGF |
| RMC AT BHT: | 1.563 OHMM AT 96.0 DEGF |
| TIME CIRC. STOPPED: | 1700 |
| TIME LOGGER ON BTM.: | 0000 8/8 |
| MAX. REC. TEMP: | 96.0 DEGF |

LOGGING UNIT NO: 8178
LOGGING UNIT LOC: SACRAMENTO
RECORDED BY: BENTLEY
WITNESSED BY: ALGER

REMARKS:

EQUIPMENT NUMBERS-

HDS 530　　DAM 1891　　HDE 2700

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 INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

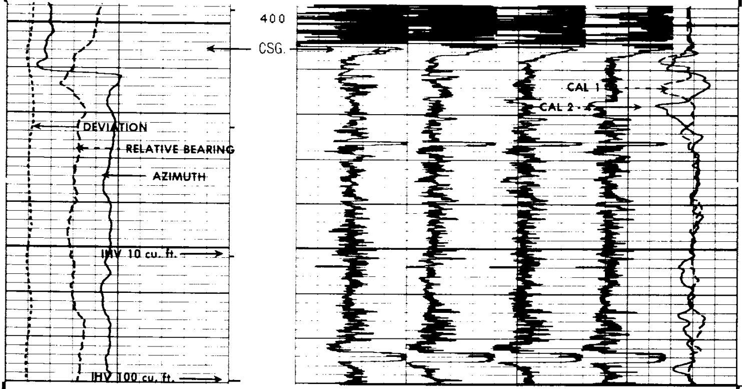
FILE 3 08-AUG-84 02:19
DATA ACQUIRED 00- -00 00:00

HOLE VOLUME = 30.7844 F3
FROM 479.7 TO 395.2 FEET

DEVI(DEG )
-1.000 9.0000
RB (DEG )
-40.00 360.00
AZIM(DEG )
-40.00 360.00

C2 (IN )
26.000 6.0000
C1 (IN )
26.000 6.0000

FILE 1 08-AUG-84 02:06



```
                           FILE     1       08-AUG-84 02:03

       DEVI(DEG )
 -1.000            9.0000
       RB   (DEG )                              C2   (IN   )
 -40.00            360.00        26.000                                  6.0000
       AZIM(DEG )                               C1   (IN   )
 -40.00            360.00        26.000                                  6.0000

                  SENSOR MEASURE POINT TO TOOL ZERO

          RB     0.0   FEET                     AZIM   0.0   FEET
          FEP1   0.0   FEET                     DEVI   0.0   FEET
          REFE   0.0   FEET                     FEP2   0.0   FEET
          EMEX   0.0   FEET                     RC     0.0   FEET
          C2     0.0   FEET                     C1     0.0   FEET
          RC2    0.0   FEET                     RC1    0.0   FEET
          TEMP   0.0   FEET                     PP     0.0   FEET
          FC0    0.0   FEET                     TENS   0.0   FEET
          FC2    0.0   FEET                     FC1    0.0   FEET
          FC4    0.0   FEET                     FC3    0.0   FEET
          SHDT   0.0   FEET

                             PARAMETERS

          NAME  VALUE     UNIT                   NAME  VALUE     UNIT

          MDEC 0          DEG                    PVUM 1.00000
          STYP HDSF                              MCT   72        DEG
          BS    7.87500   IN                     BHS   OPEN
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```
                           FILE     1       08-AUG-84 02:01

       DEVI(DEG )
 -1.000            9.0000
       RB   (DEG )                              C2   (IN   )
 -40.00            360.00        26.000                                  6.0000
       AZIM(DEG )                               C1   (IN   )
 -40.00            360.00        26.000                                  6.0000

                  SENSOR MEASURE POINT TO TOOL ZERO

          RB     0.0   FEET                     AZIM   0.0   FEET
          FEP1   0.0   FEET                     DEVI   0.0   FEET
          REFE   0.0   FEET                     FEP2   0.0   FEET
          EMEX   0.0   FEET                     RC     0.0   FEET
          C2     0.0   FEET                     C1     0.0   FEET
          RC2    0.0   FEET                     RC1    0.0   FEET
          TEMP   0.0   FEET                     PP     0.0   FEET
          FC0    0.0   FEET                     TENS   0.0   FEET
          FC2    0.0   FEET                     FC1    0.0   FEET
          FC4    0.0   FEET                     FC3    0.0   FEET
          SHDT   0.0   FEET

                             PARAMETERS

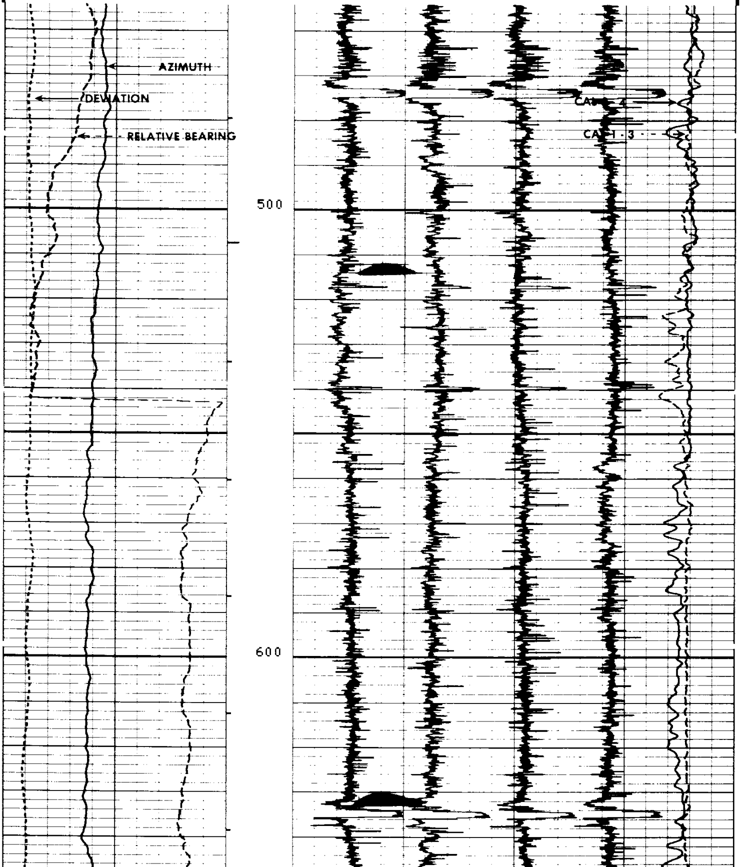
          NAME  VALUE     UNIT                   NAME  VALUE     UNIT

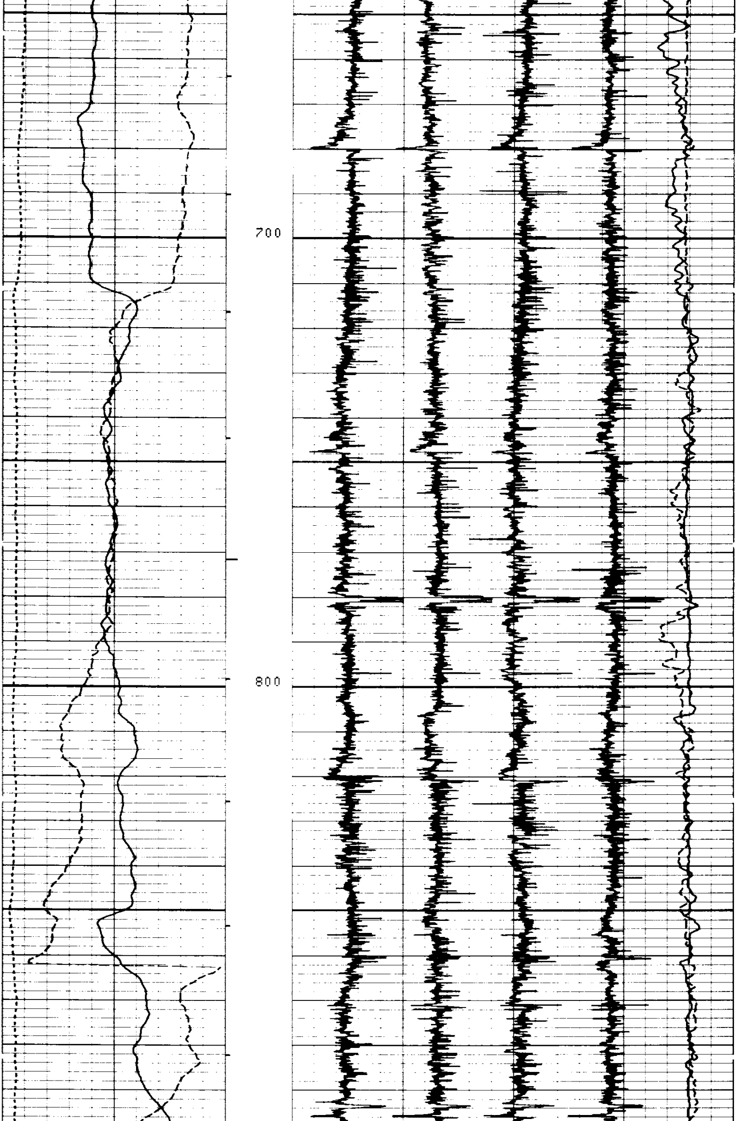
          MDEC 0          DEG                    PVUM 1.00000
          STYP HDSF                              MCT   72        DEG
          BS    7.87500   IN                     BHS   OPEN
```

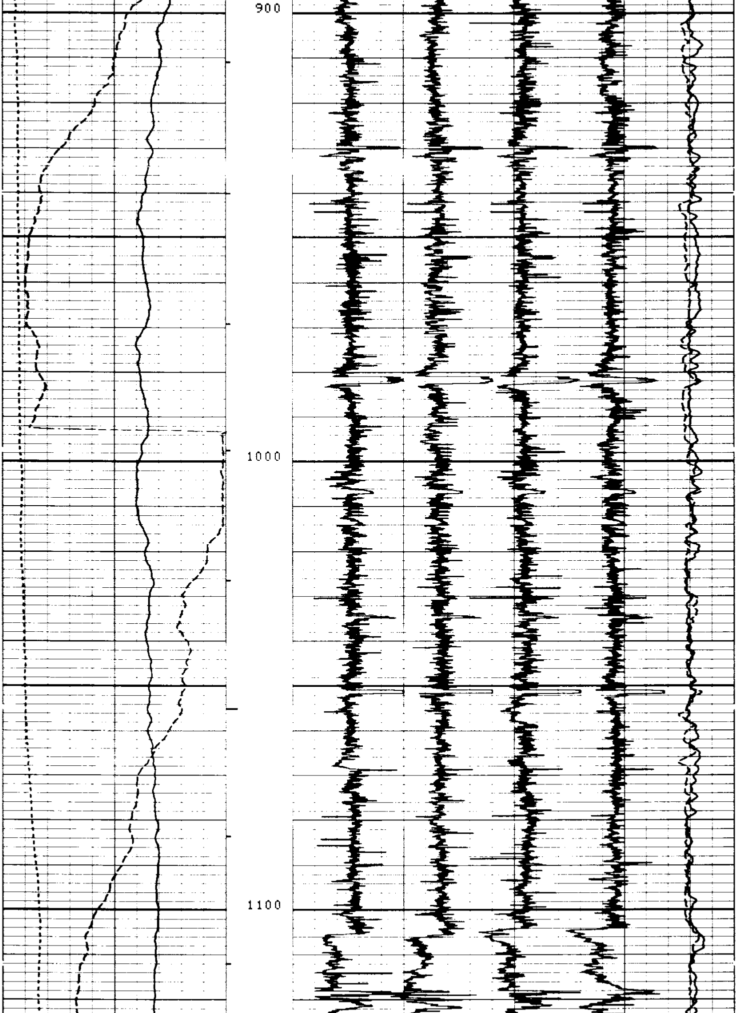
HOLE VOLUME = 619.030 F3
FROM 2268.8 TO 453.8 FEET

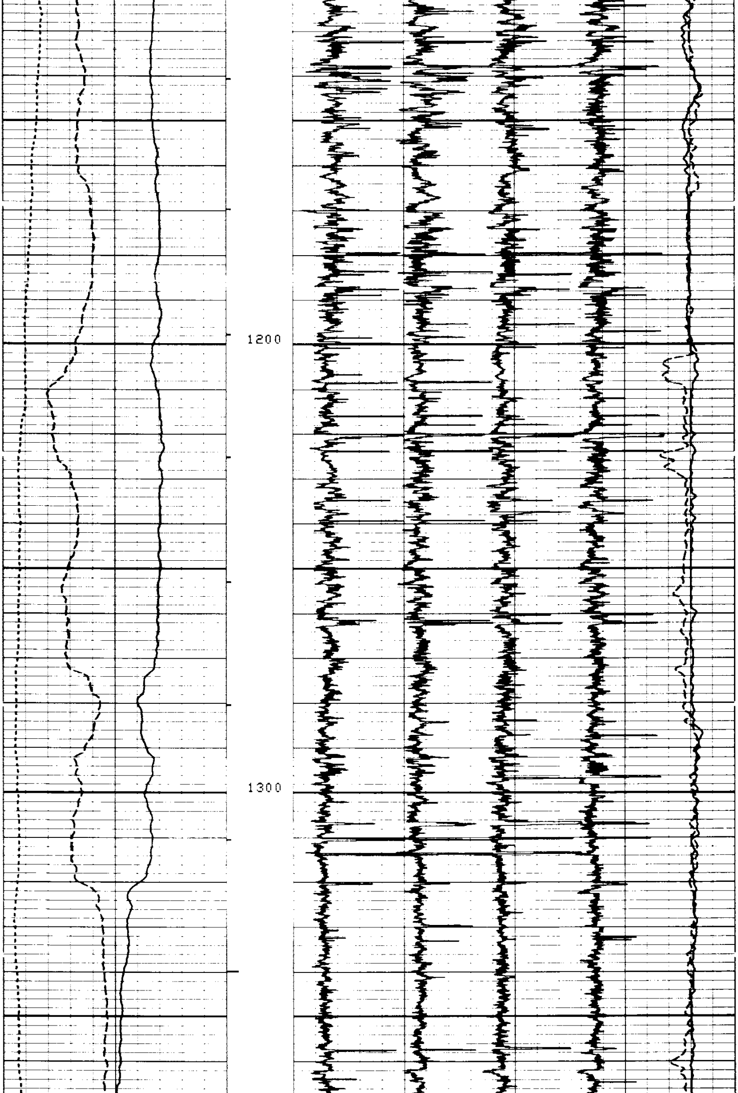
| Curve | Left | Right |
|---|---|---|
| DEVI(DEG ) | -1.000 | 9.0000 |
| RB (DEG ) | -40.00 | 360.00 |
| AZIM(DEG ) | -40.00 | 360.00 |
| C2 (IN ) | 26.000 | 6.0000 |
| C1 (IN ) | 26.000 | 6.0000 |

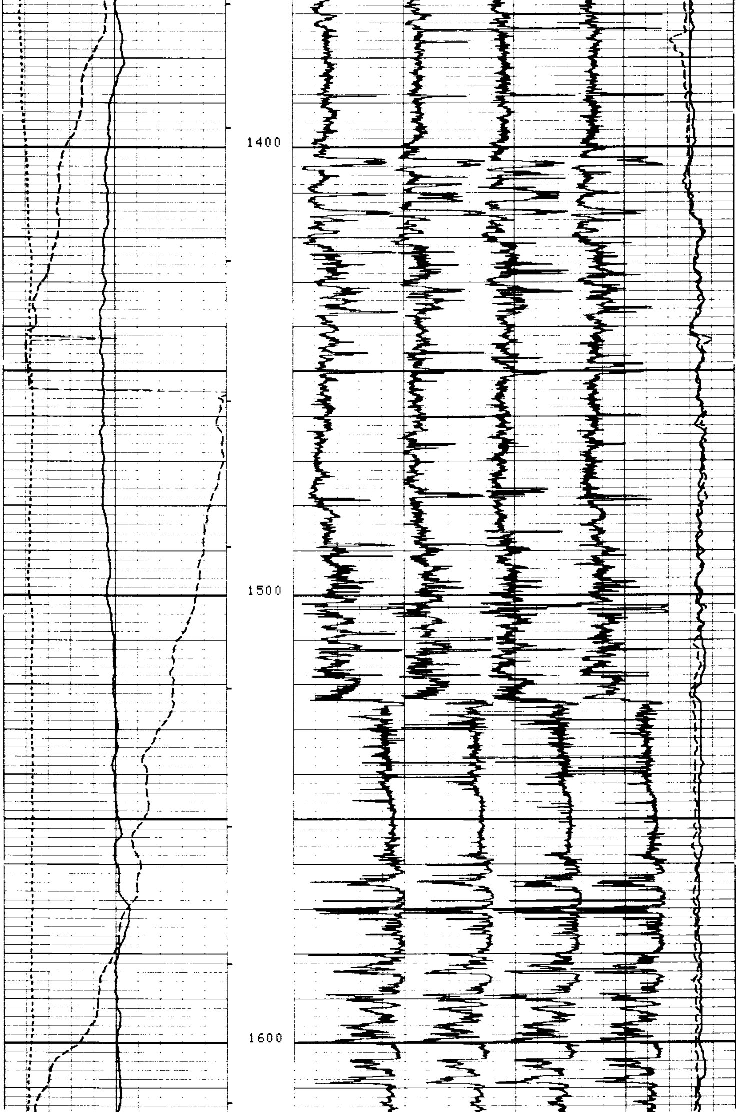
FILE 5 08-AUG-84 01:56

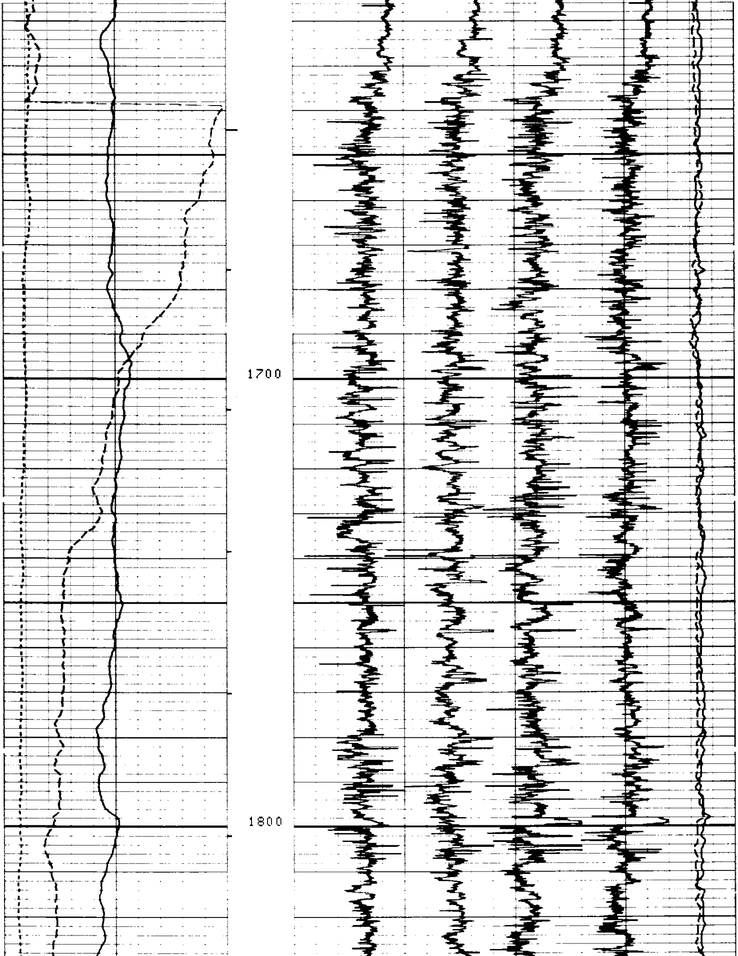


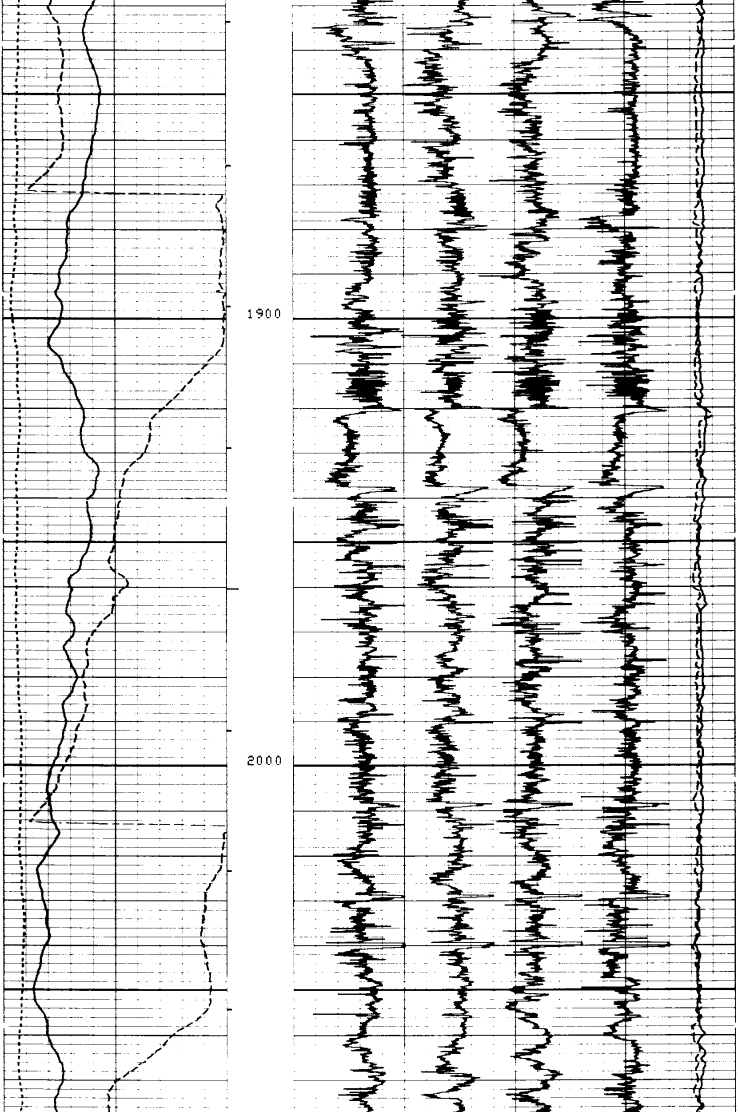


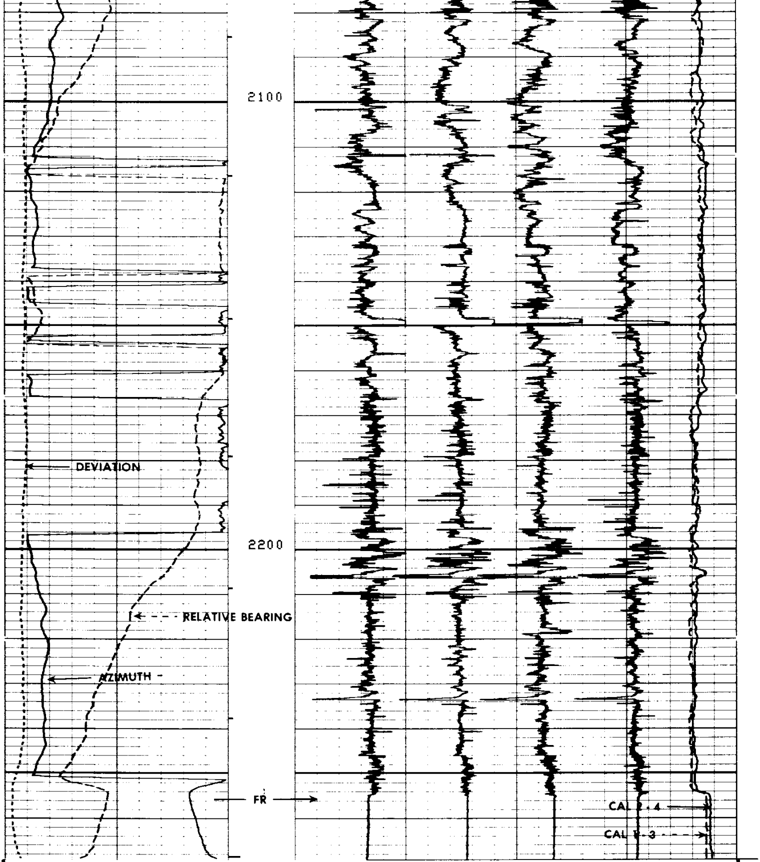












FILE 5 08-AUG-84 01:17

| | | | |
|---|---|---|---|
| DEVI(DEG ) | | | |
| -1.000 | 9.0000 | | |
| RB (DEG ) | | C2 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |
| AZIM(DEG ) | | C1 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |

SENSOR MEASURE POINT TO TOOL ZERO

| | | | | | |
|---|---|---|---|---|---|
| RB | 0.0 | FEET | AZIM | 0.0 | FEET |
| FEP1 | 0.0 | FEET | DEVI | 0.0 | FEET |
| REFE | 0.0 | FEET | FEP2 | 0.0 | FEET |
| EMEX | 0.0 | FEET | RC | 0.0 | FEET |
| C2 | 0.0 | FEET | C1 | 0.0 | FEET |
| RC2 | 0.0 | FEET | RC1 | 0.0 | FEET |
| TEMP | 0.0 | FEET | PP | 0.0 | FEET |
| FC0 | 0.0 | FEET | TENS | 0.0 | FEET |
| FC2 | 0.0 | FEET | FC1 | 0.0 | FEET |
| FC4 | 0.0 | FEET | FC3 | 0.0 | FEET |
| SHDT | 0.0 | FEET | | | |

PARAMETERS

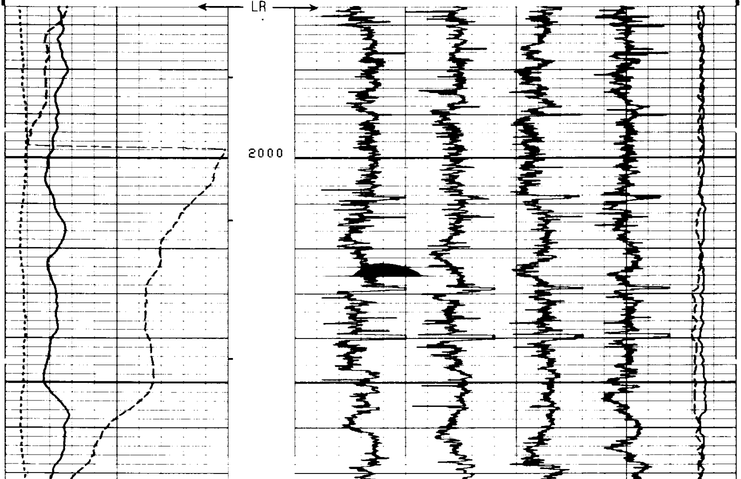
| NAME | VALUE | UNIT | NAME | VALUE | UNIT |
|---|---|---|---|---|---|
| MDEC | 0 | DEG | PVUM | 1.00000 | |
| STYP | HDSF | | MCT | 72 | DEG |
| BS | 7.87500 | IN | BHS | OPEN | |

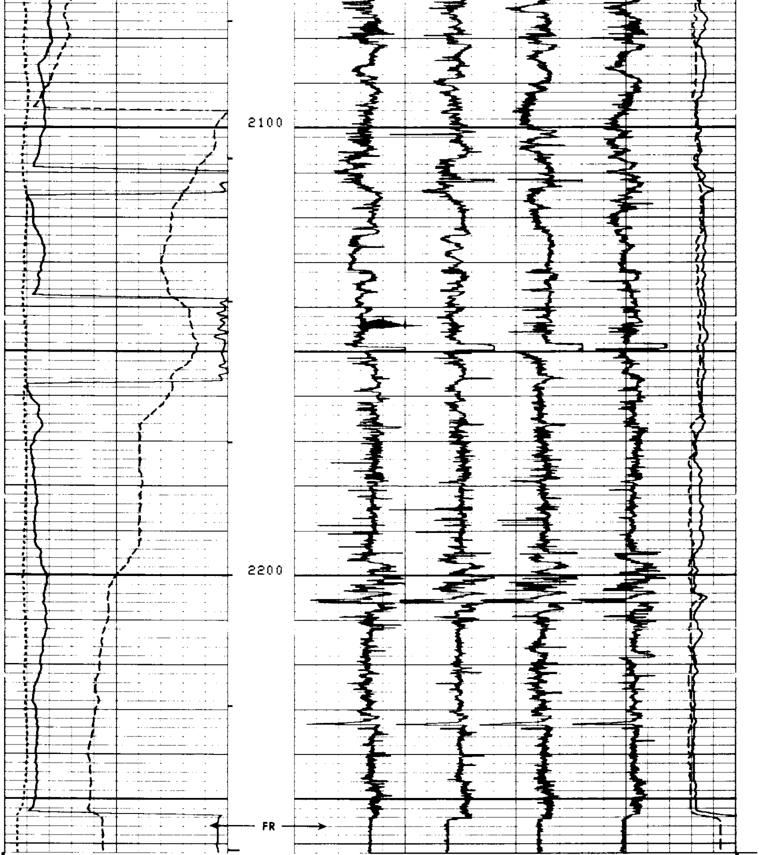
HOLE VOLUME = 95.1795 F3
FROM 2261.6 TO 1965.6 FEET

| | | | |
|---|---|---|---|
| DEVI(DEG ) | | | |
| -1.000 | 9.0000 | | |
| RB (DEG ) | | C2 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |
| AZIM(DEG ) | | C1 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |

## REPEAT SECTION

FILE 4 08-AUG-84 01:16





FILE 4 08-AUG-84 01:09

| | | | |
|---|---|---|---|
| DEVI(DEG ) | | | |
| -1.000 | 9.0000 | | |
| RB (DEG ) | | C2 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |
| AZIM(DEG ) | | C1 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |

SENSOR MEASURE POINT TO TOOL ZERO

| | | | | | |
|---|---|---|---|---|---|
| RB | 0.0 | FEET | AZIM | 0.0 | FEET |
| FEP1 | 0.0 | FEET | DEVI | 0.0 | FEET |
| REFE | 0.0 | FEET | FEP2 | 0.0 | FEET |
| EMEX | 0.0 | FEET | RC | 0.0 | FEET |
| C2 | 0.0 | FEET | C1 | 0.0 | FEET |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| RC2 | 0.0 | FEET | RC1 | 0.0 | FEET |
| TEMP | 0.0 | FEET | PP | 0.0 | FEET |
| FC0 | 0.0 | FEET | TENS | 0.0 | FEET |
| FC2 | 0.0 | FEET | FC1 | 0.0 | FEET |
| FC4 | 0.0 | FEET | FC3 | 0.0 | FEET |
| SHDT | 0.0 | FEET |  |  |  |

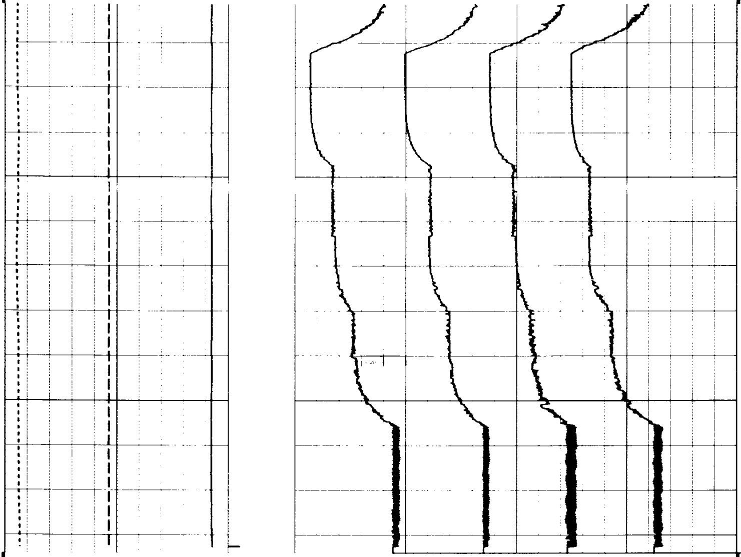
PARAMETERS

| NAME | VALUE | UNIT | NAME | VALUE | UNIT |
|---|---|---|---|---|---|
| MDEC | 0 | DEG | PVUM | 1.00000 |  |
| STYP | HDSF |  | MCT | 72 | DEG |
| BS | 7.87500 | IN | BHS | OPEN |  |

DEVI(DEG )
-1.000 9.0000
RB (DEG )
-40.00 360.00
AZIM(DEG )
-40.00 360.00

C2 (IN )
26.000 6.0000
C1 (IN )
26.000 6.0000

FILE 3 08-AUG-84 01:08



FILE 3 08-AUG-84 01:07

DEVI(DEG )
-1.000 9.0000
RB (DEG )
-40.00 360.00

C2 (IN )
26.000 6.0000

```
      AZIM(DEG )                            C1  (IN  )
-40.00             360.00     26.000                                          6.0000

                     SENSOR MEASURE POINT TO TOOL ZERO

          RB      0.0   FEET                           AZIM   0.0   FEET
          FEP1    0.0   FEET                           DEVI   0.0   FEET
          REFE    0.0   FEET                           FEP2   0.0   FEET
          EMEX    0.0   FEET                           RC     0.0   FEET
          C2      0.0   FEET                           C1     0.0   FEET
          RC2     0.0   FEET                           RC1    0.0   FEET
          TEMP    0.0   FEET                           PP     0.0   FEET
          FC0     0.0   FEET                           TENS   0.0   FEET
          FC2     0.0   FEET                           FC1    0.0   FEET
          FC4     0.0   FEET                           FC3    0.0   FEET
          SHDT    0.0   FEET

                                  PARAMETERS

          NAME  VALUE     UNIT                          NAME  VALUE     UNIT

          MDEC 0          DEG                           PVUM 1.00000
          STYP HDSF                                     MCT  72         DEG
          BS   7.87500    IN                            BHS  OPEN
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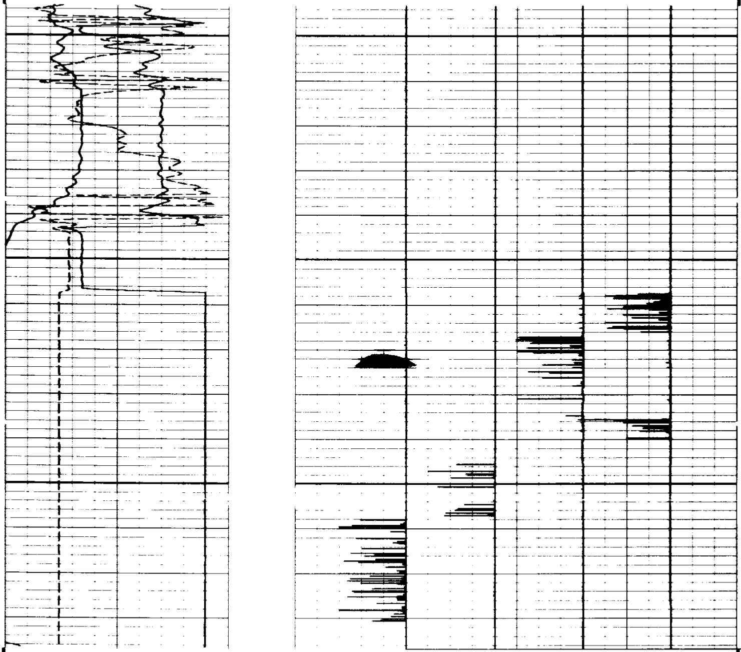
```
                       FILE    2     08-AUG-84 01:04

      DEVI(DEG )
-1.000             9.0000
      RB  (DEG )                            C2  (IN  )
-40.00             360.00     26.000                                          6.0000
      AZIM(DEG )                            C1  (IN  )
-40.00             360.00     26.000                                          6.0000

                     SENSOR MEASURE POINT TO TOOL ZERO

          RB      0.0   FEET                           AZIM   0.0   FEET
          FEP1    0.0   FEET                           DEVI   0.0   FEET
          REFE    0.0   FEET                           FEP2   0.0   FEET
          EMEX    0.0   FEET                           RC     0.0   FEET
          C2      0.0   FEET                           C1     0.0   FEET
          RC2     0.0   FEET                           RC1    0.0   FEET
          TEMP    0.0   FEET                           PP     0.0   FEET
          FC0     0.0   FEET                           TENS   0.0   FEET
          FC2     0.0   FEET                           FC1    0.0   FEET
          FC4     0.0   FEET                           FC3    0.0   FEET
          SHDT    0.0   FEET

                                  PARAMETERS

          NAME  VALUE     UNIT                          NAME  VALUE     UNIT

          MDEC 0          DEG                           PVUM 1.00000
          STYP HDSF                                     MCT  72         DEG
          BS   7.87500    IN                            BHS  OPEN
```

| DEVI(DEG ) | | C2 (IN ) | |
|---|---|---|---|
| -1.000 | 9.0000 | | |
| RB (DEG ) | | | |
| -40.00 | 360.00 | 26.000 | 6.0000 |
| AZIM(DEG ) | | C1 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |

FILE 1 08-AUG-84 00:35



FILE 1 08-AUG-84 00:31

| DEVI(DEG ) | | C2 (IN ) | |
|---|---|---|---|
| -1.000 | 9.0000 | | |
| RB (DEG ) | | | |
| -40.00 | 360.00 | 26.000 | 6.0000 |
| AZIM(DEG ) | | C1 (IN ) | |
| -40.00 | 360.00 | 26.000 | 6.0000 |

SENSOR MEASURE POINT TO TOOL ZERO

| | | | | | |
|---|---|---|---|---|---|
| RB | 0.0 | FEET | AZIM | 0.0 | FEET |
| FEP1 | 0.0 | FEET | DEVI | 0.0 | FEET |
| REFE | 0.0 | FEET | FEP2 | 0.0 | FEET |
| EMEX | 0.0 | FEET | RC | 0.0 | FEET |
| C2 | 0.0 | FEET | C1 | 0.0 | FEET |
| RC2 | 0.0 | FEET | RC1 | 0.0 | FEET |
| TEMP | 0.0 | FEET | PP | 0.0 | FEET |
| FC0 | 0.0 | FEET | TENS | 0.0 | FEET |
| FC2 | 0.0 | FEET | FC1 | 0.0 | FEET |
| FC4 | 0.0 | FEET | FC3 | 0.0 | FEET |

```
SHDT  0.0  FEET
```

```
                              PARAMETERS

NAME  VALUE    UNIT                     NAME  VALUE    UNIT

MDEC 0         DEG                      PVUM 1.00000
STYP HDSF                               MCT  72        DEG
BS   7.87500   IN                       BHS  OPEN
```

```
             BEFORE SURVEY CALIBRATION SUMMARY


 PERFORMED:      84/08/08
 PROGRAM FILE: HDT    (VERSION    26.2    83/11/17)


HDTF                 CALIPER CALIBRATION SUMMARY

          MEASURED                      CALIBRATED
        SMALL   LARGE            [redacted]ALL      LARGE        UNITS
  C1     9.7    14.8                 8.0       12.0          IN
  C2     9.6    14.6                 8.0       12.0          IN

                 FILE    0      08-AUG-84 00:31
```