COUNTY	COLUMBIA OREGON
FIELD	MIST
LOCATION	
WELL	L.F.L. NO. 33-9
COMPANY	ARCO OIL & GAS

Schlumberger

NEUTRON-DENSITY

COMPANY ARCO OIL AND GAS COMPANY

WELL L.F.L. NO. 33-9

FIELD MIST

COUNTY COLUMBIA STATE OREGON

LOCATION 1695' NORTH AND 2525' WEST FROM SOUTHEAST CORNER

API SERIAL NO.	SEC.	TWP.	RANGE
	9	5 N	4 W

Other Services: DIL/SLS BHC

Permanent Datum: G.L. Elev 1110.4

Log Measured From K.B. 12 Ft. Above Perm. Datum

Drilling Measured From K.B.

Elev.: K.B. 1122.4

D.F. 1121.4

G.L. 1110.4

Date	9-6-86							
Run No.	ONE							
Depth-Driller	3243							
Depth-Logger (Schl.)	3234							
Btm. Log Interval	3230							
Top Log Interval	1768							
Casing-Driller	7" @1773		@		@		@	
Casing-Logger	1768							
Bit Size	6 1/4							
Type Fluid in Hole	LIGNOSULFONATE							
Dens. | Visc.	10.20	39.0						
pH | Fluid Loss	9.5	5.6 ml		ml		ml		ml
Source of Sample	FLOWLINE							
Rm @ Meas. Temp.	2.310 @ 88 F		@	F	@	F	@	F
Rmf @ Meas. Temp.	1.950 @ 72 F		@	F	@	F	@	F
Rmc @ Meas. Temp.	2.760 @ 72 F		@	F	@	F	@	F
Source: Rmf | Rmc	MEAS	MEAS						
Rm @ BHT	1.908 @ 108 F		@	F	@	F	@	F
TIME Circulation Stopped	1515							
TIME Logger on Bottom	1954							
Max. Rec. Temp.	108 F			F		F		F
Equip. | Location	8128	SACRAMENTO						
Recorded By	HARPER/PITCH							
Witnessed By	ANDERSON/STAFFORD							

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

Run No. ONE

Service Order No. [illegible]

API Serial No.

Fluid Level

SCALE CHANGES

Type Log	Depth	Scale Up Hole	Scale Down Hole

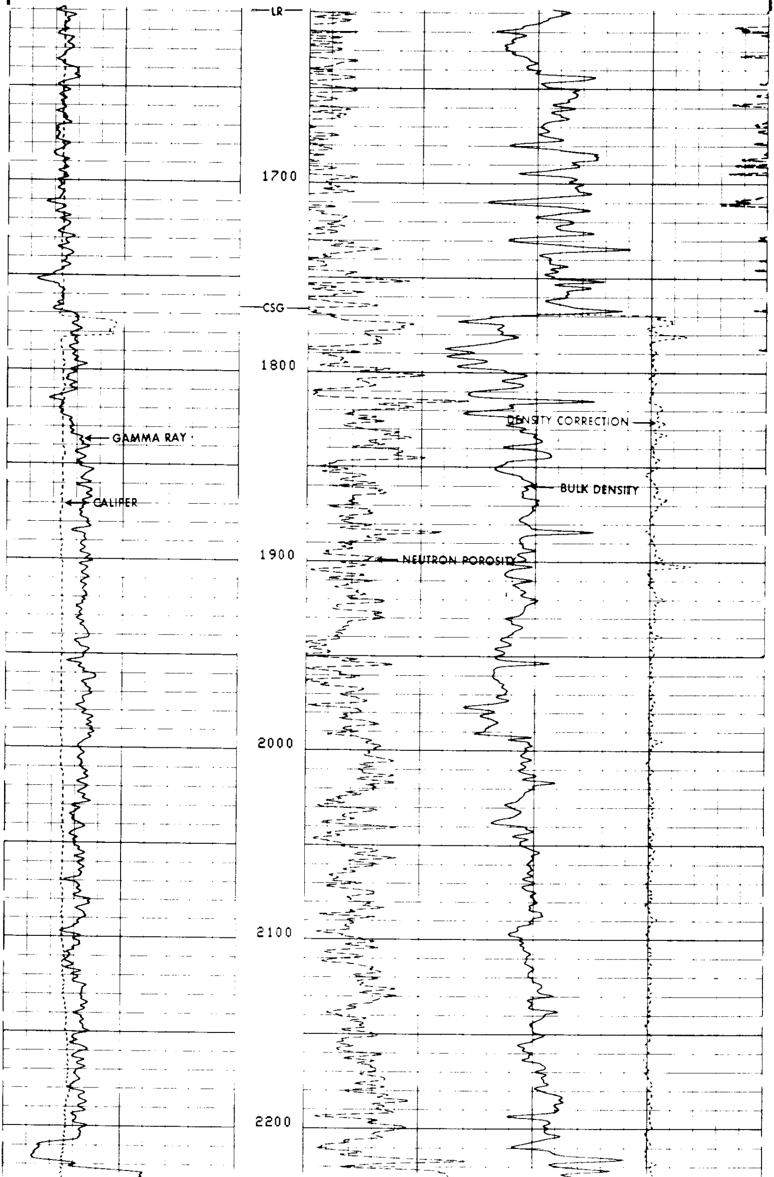
```
EQUIPMENT NUMBERS-

DRS-C 3756       NSC-D 1955       CNC-HA 1263       SGC-SA 581
CCC-B 1880       CCSM-AB 322
```

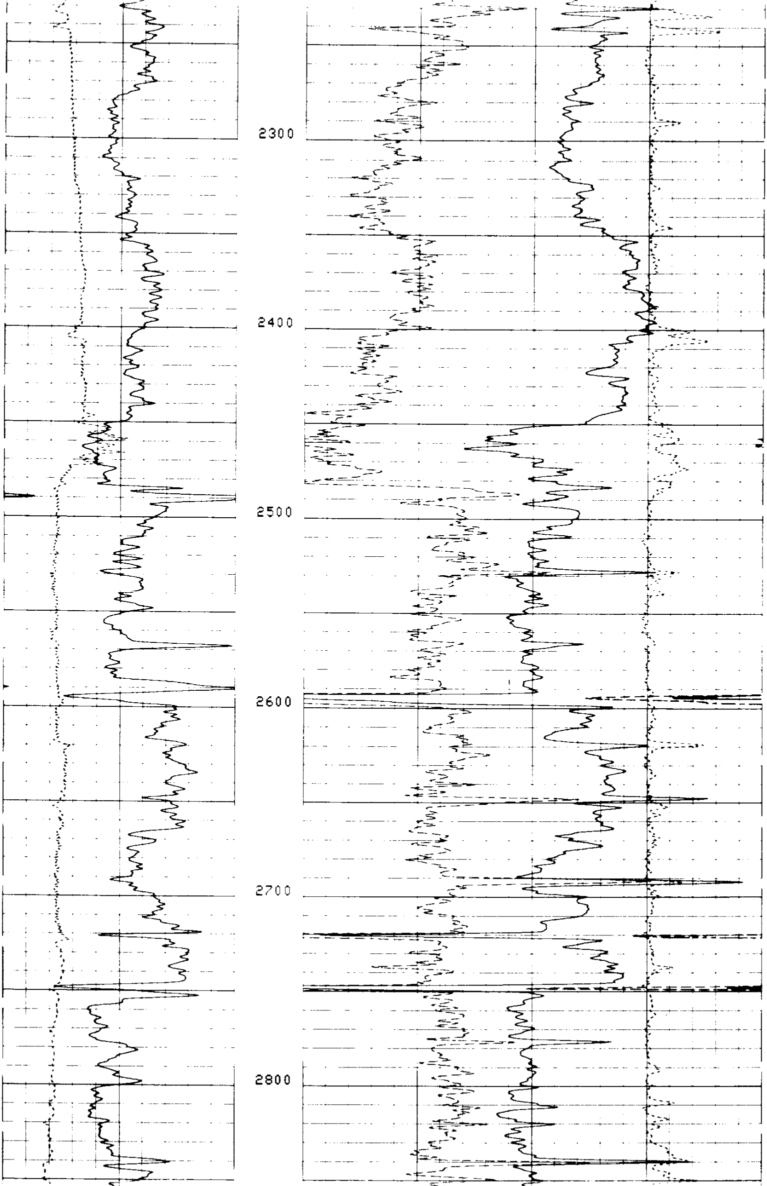
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, 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.

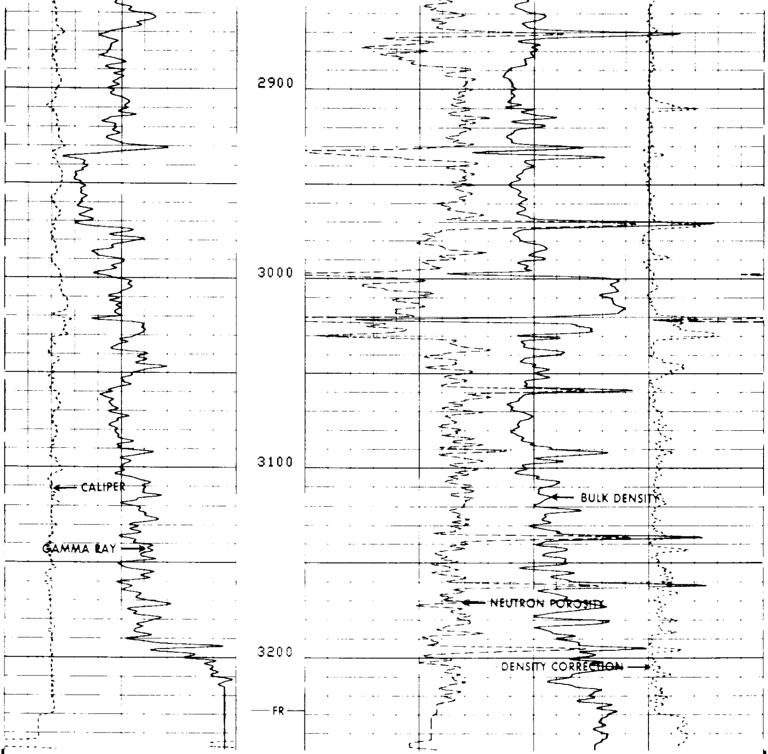
```
CP 28.2A            FILE     3        06-SEP-86 20:58
                    DATA ACQUIRED     06-SEP-86 20:44
```

```
                                                          DRHO(G/C3)
                                                   -.2500              .25000
        CALI(IN   )                            NPHI
4.0000              14.000      .60000                                   0.0
          GR   (GAPI)                          RHOB(G/C3)
0.0                 150.00      1.6500                                2.6500
```

```
CP 28.2A            FILE     3        06-SEP-86 20:58
                    DATA ACQUIRED     06-SEP-86 20:44
```







CP 28.2A

FILE 3 06-SEP-86 20:53
DATA ACQUIRED 06-SEP-86 19:53

DRHO(G/C3)
-.2500 .25000

CALI(IN)
4.0000 14.000

NPHI
.60000 0.0

GR (GAPI)
0.0 150.00

RHOB(G/C3)
1.6500 2.6500

SENSOR MEASURE POINT TO TOOL ZERO

STSG	-.9	FEET	GR	32.3	FEET
NCNL	23.7	FEET	FCNL	23.7	FEET
LITH	2.6	FEET	SCNL	-.9	FEET
LS	2.6	FEET	LL	2.6	FEET
SS1	2.1	FEET	LU	2.6	FEET
CALI	2.7	FEET	SS2	2.1	FEET
NRAT	23.7	FEET	TENS	-.9	FEET

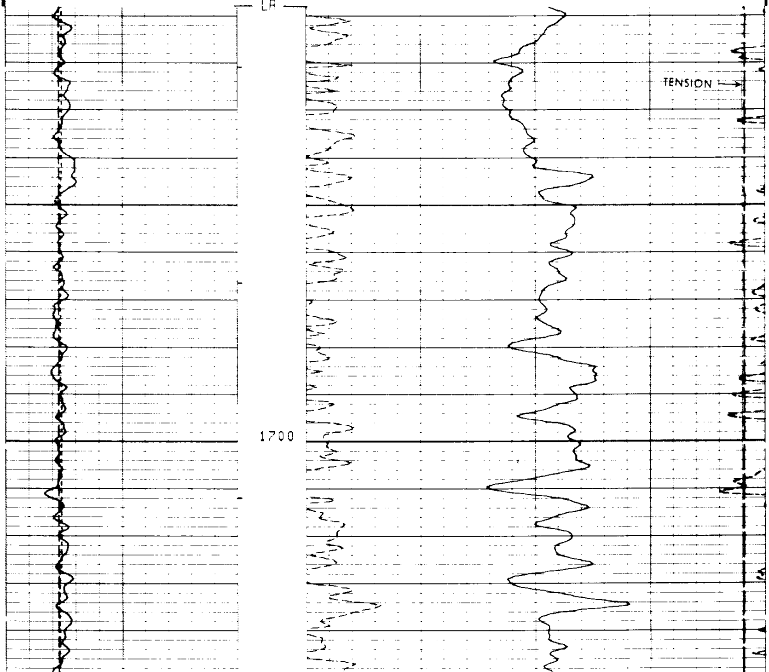
PARAMETERS

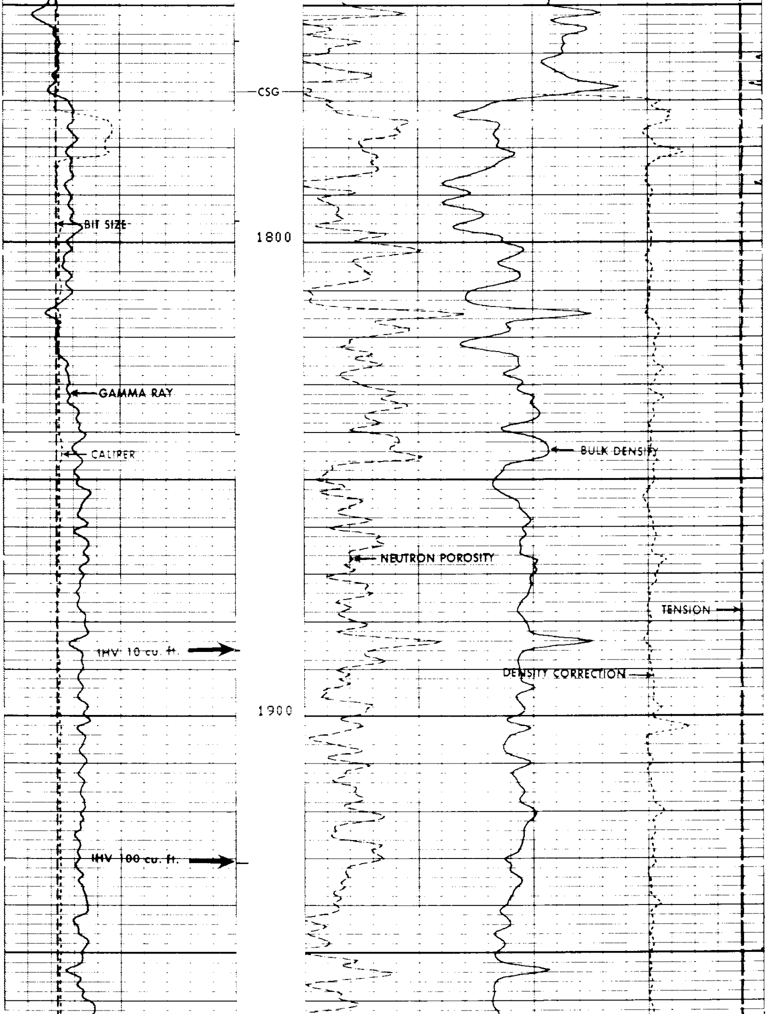
NAME	VALUE	UNIT	NAME	VALUE	UNIT

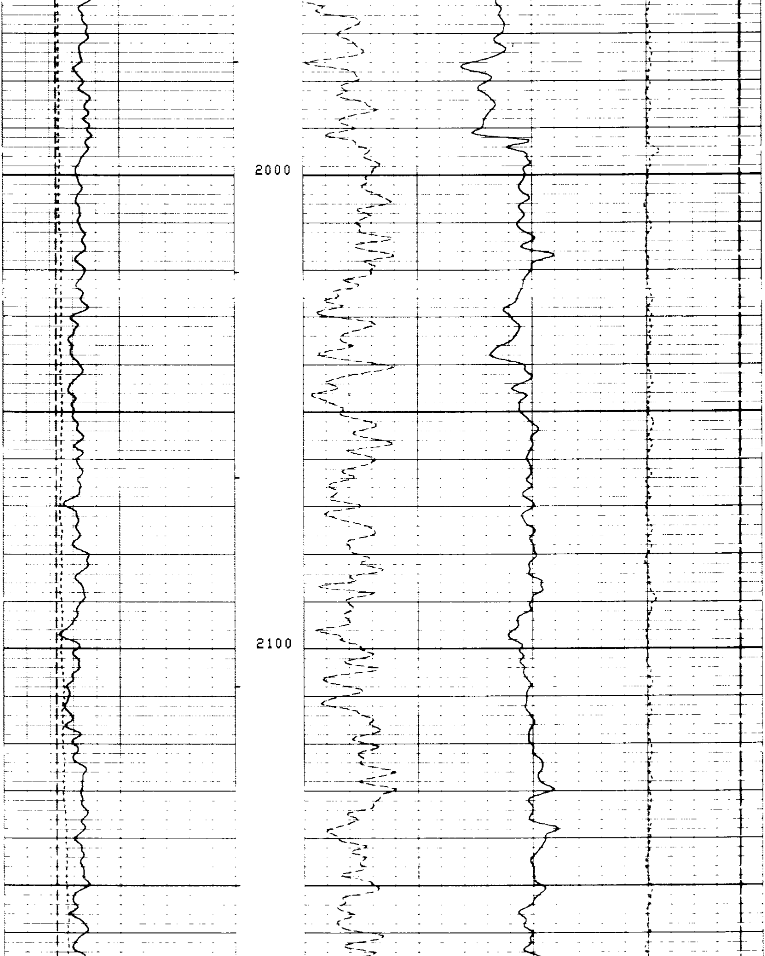
```
SHT   80.0000    DEGF              TD    10000.0      F
HC    CALI                         PSNR  2.17500
FD    1.00000    G/C3              MATR  SAND
WMUD  8.00000    LB/G              MDEN  2.65000      G/C3
DHC   BS                           BFM   LIQU
BS    6.25000    IN                BHS   OPEN
PP    NORM                         DO    0.0          F

                  TAPE NOT MADE
```

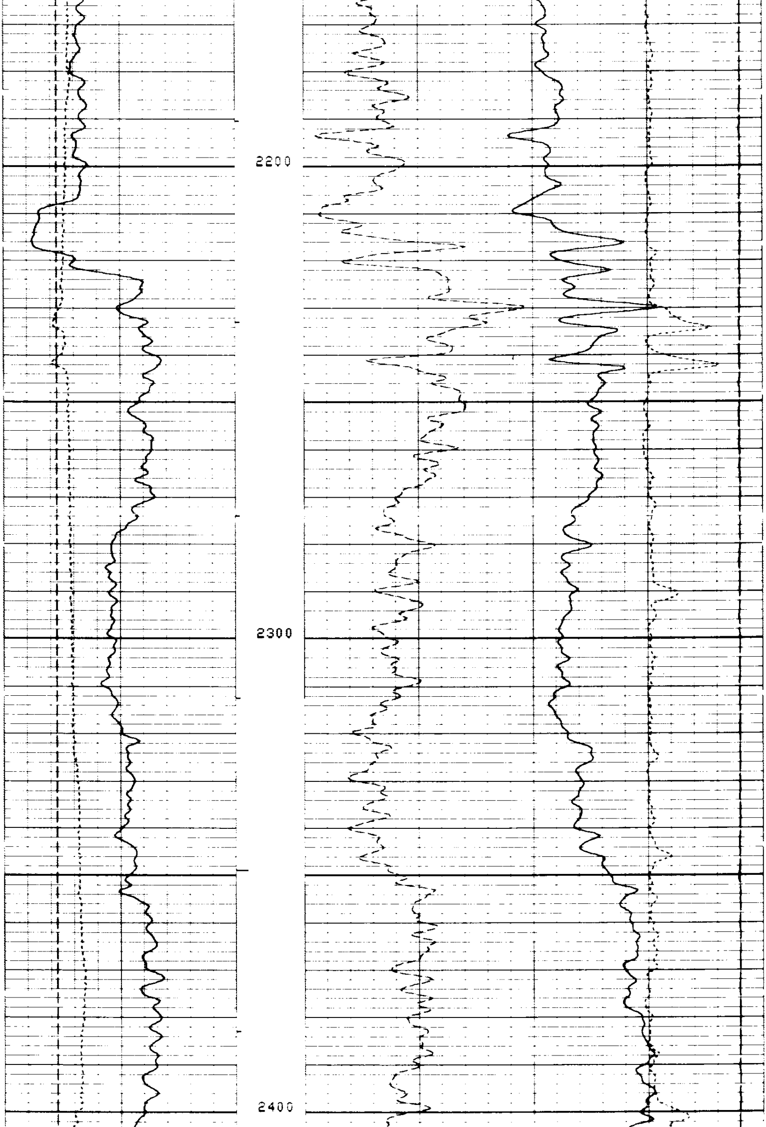
```
                                                      TENS(LB   )
                                               10000.              0.0
       BS   (IN   )                                   DRHO(G/C3)
4.0000            14.000                       -.2500              .25000
       CALI(IN   )                          NPHI
4.0000            14.000       .60000                               0.0
       GR   (GAPI)                          RHOB(G/C3)
0.0               150.00       1.6500                              2.6500
```

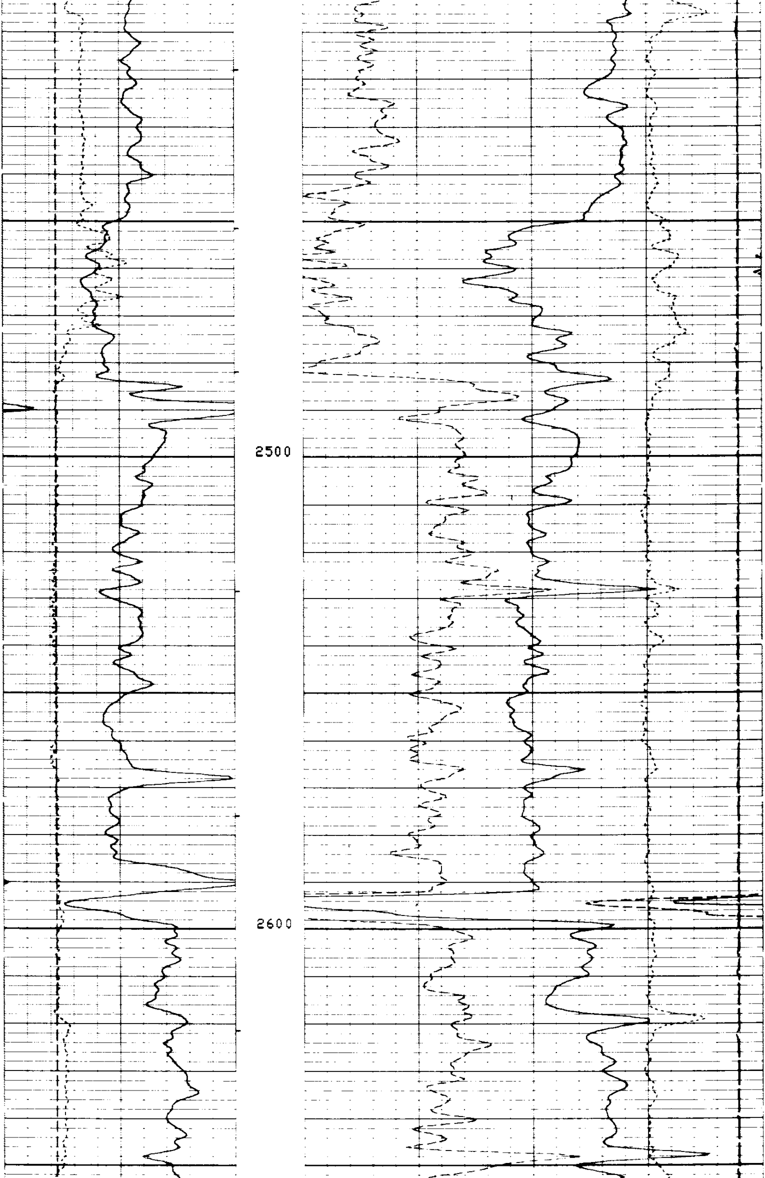
CP 28.2A   FILE   3   06-SEP-86 20:45

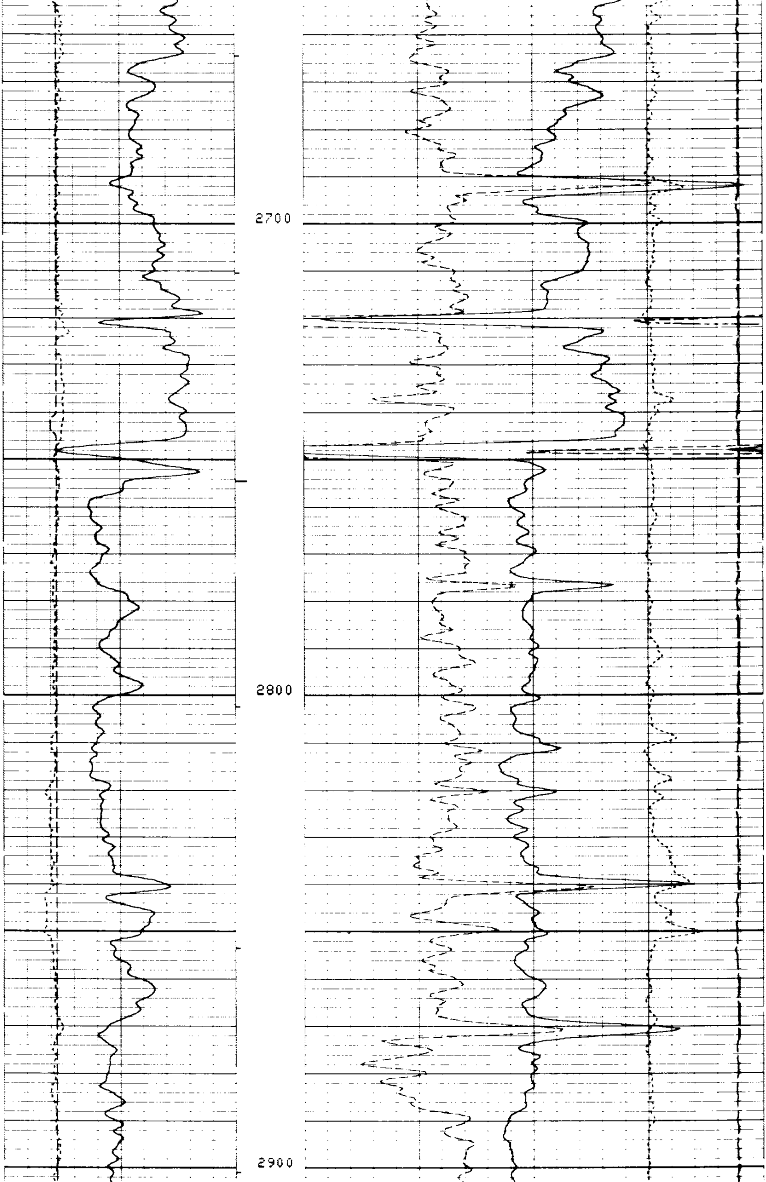


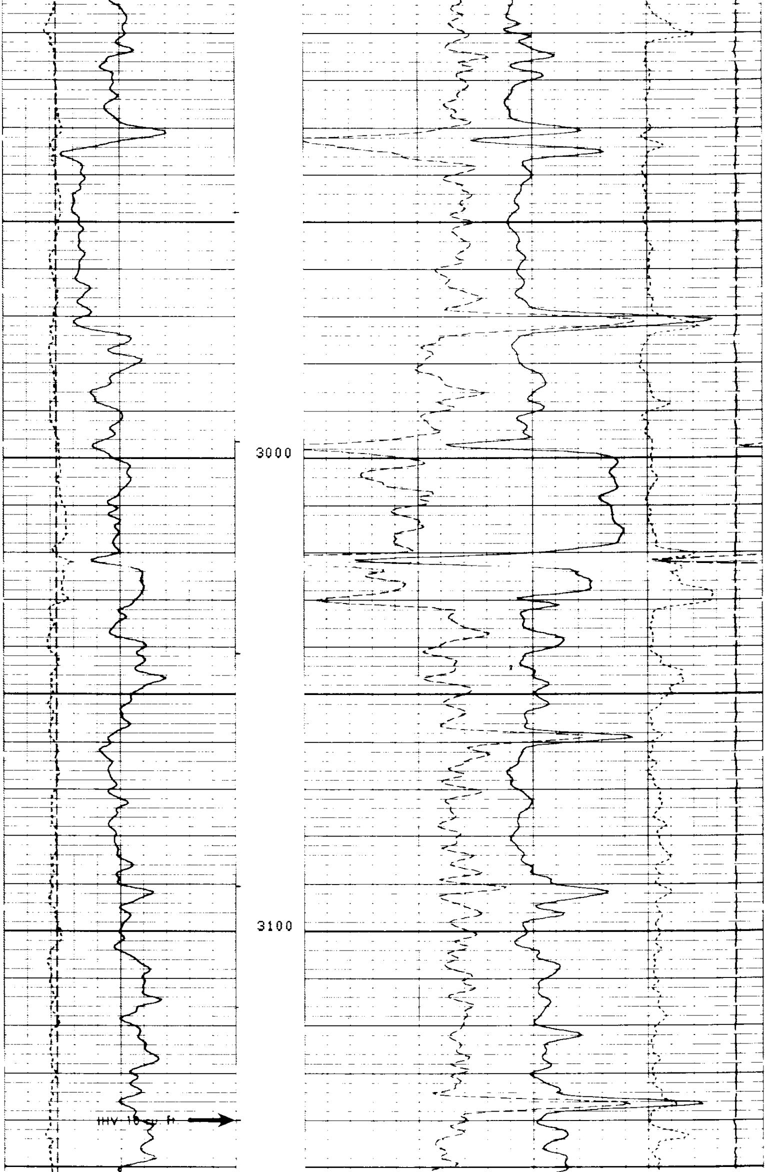


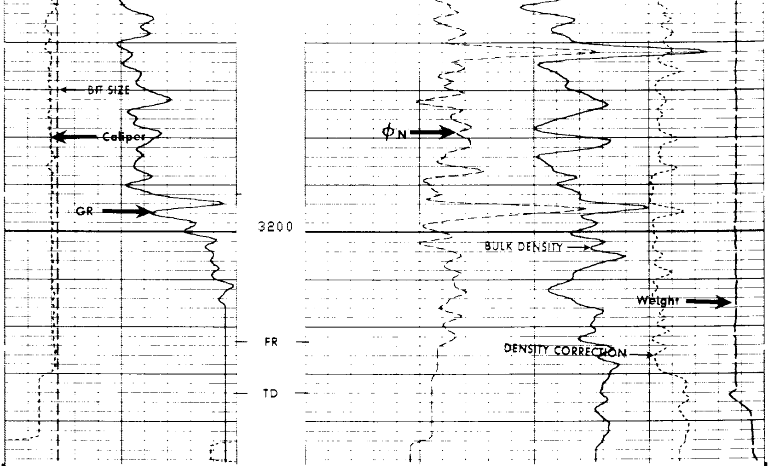












CP 28.2A FILE 3 06-SEP-86 19:53

TENS(LB)
10000. 0.0
DRHO(G/C3)
-.2500 .25000

BS (IN)
4.0000 14.000
CALI(IN)
4.0000 14.000
GR (GAPI)
0.0 150.00

NPHI
.60000 0.0
RHOB(G/C3)
1.6500 2.6500

SENSOR MEASURE POINT TO TOOL ZERO

STSG	-.9	FEET	GR	32.3	FEET
NCNL	23.7	FEET	FCNL	23.7	FEET
LITH	2.6	FEET	SCNL	-.9	FEET
LS	2.6	FEET	LL	2.6	FEET
SS1	2.1	FEET	LU	2.6	FEET
CALI	2.7	FEET	SS2	2.1	FEET
NRAT	23.7	FEET	TENS	-.9	FEET

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
SHT	80.0000	DEGF	TD	10000.0	F
HC	CALI		PSNR	2.17500	
FD	1.00000	G/C3	MATR	SAND	
WMUD	8.00000	LB/G	MDEN	2.65000	G/C3
DHC	BS		BFM	LIQU	
BS	6.25000	IN	BHS	OPEN	

EVENT MARK SUMMARY:

OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
IHV	10.0000 F3	LEFT EDGE

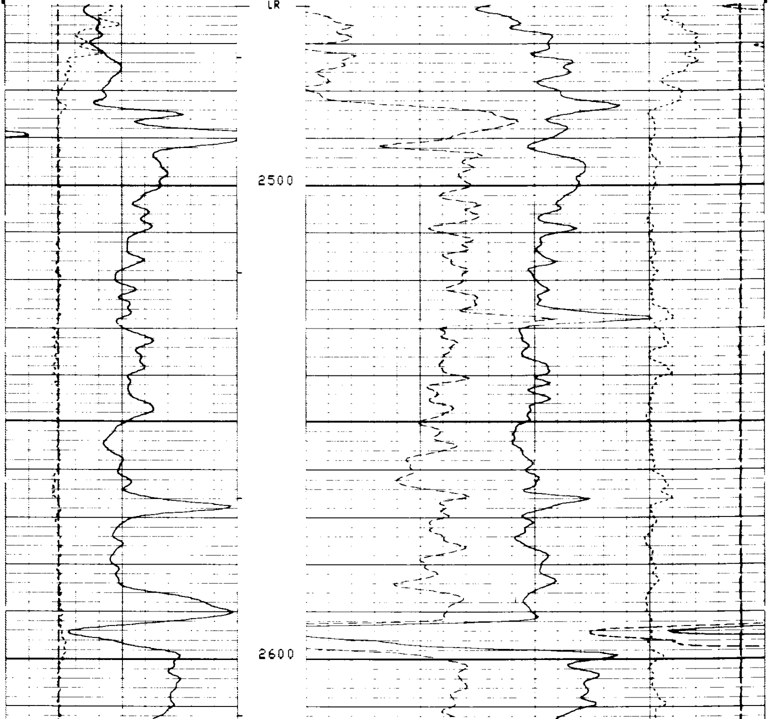
TENS(LB)
10000. 0.0
DRHO(G/C3)
-.2500 .25000

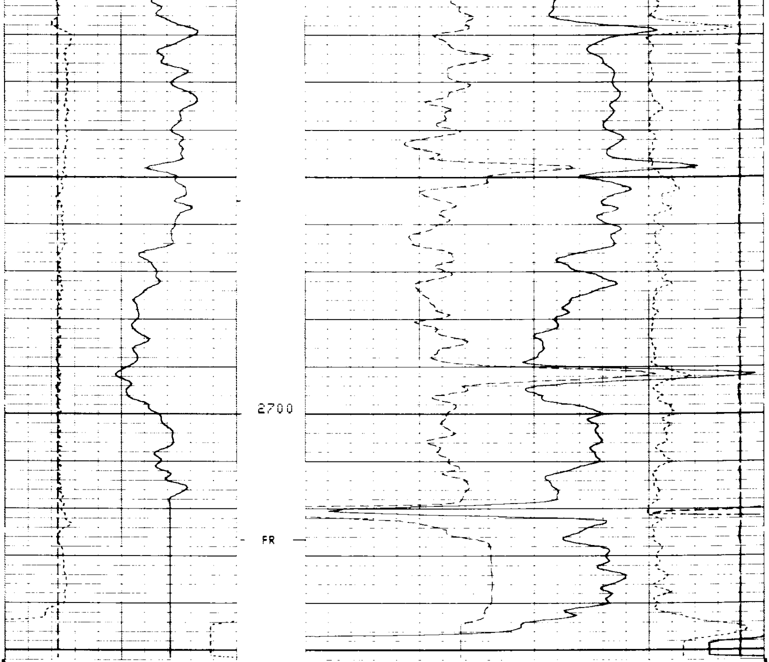
BS (IN)
4.0000 14.000
CALI(IN)
4.0000 14.000
GR (GAPI)
0.0 150.00

NPHI
.60000 0.0
RHOB(G/C3)
1.6500 2.6500

REPEAT SECTION

CP 28.2A FILE 2 06-SEP-86 19:50





CP 28.2A FILE 2 06-SEP-86 19:39

TENS(LB)
10000. 0.0
DRHO(G/C3)
-.2500 .25000

BS (IN)
4.0000 14.000

CALI(IN)
4.0000 14.000

NPHI
.60000 0.0

GR (GAPI)
0.0 150.00

RHOB(G/C3)
1.6500 2.6500

SENSOR MEASURE POINT TO TOOL ZERO

STSG	-.9	FEET	GR	32.3	FEET
NCNL	23.7	FEET	FCNL	23.7	FEET
LITH	2.6	FEET	SCNL	-.9	FEET
LS	2.6	FEET	LL	2.6	FEET
SS1	2.1	FEET	LU	2.6	FEET
CALI	2.7	FEET	SS2	2.1	FEET
NRAT	23.7	FEET	TENS	-.9	FEET

```
                              PARAMETERS

   NAME  VALUE       UNIT                    NAME  VALUE       UNIT

   SHT   80.0000     DEGF                    TD    10000.0     F
   HC    CALI                                PSNR  2.17500
   FD    1.00000     G/C3                    MATR  SAND
   WMUD  8.00000     LB/G                    MDEN  2.65000     G/C3
   DHC   BS                                  BFM   LIQU
   BS    6.25000     IN                      BHS   OPEN
```

```
                BEFORE SURVEY CALIBRATION SUMMARY


   PERFORMED:     06-SEP-86 19:28
   PROGRAM FILE: LEP    (VERSION    28.2A   85/07/10)


  SGTL                DETECTOR CALIBRATION SUMMARY

              MEASURED
            BKGD    JIG         CALIBRATED          UNITS
     GR      23     185            165              GAPI


  LDTC                DETECTOR CALIBRATION SUMMARY

        DRS SONDE NUMBER                        :    3756
        NUCLEAR SERVICE CARTRIDGE NUMBER        :    1955
        POWERED DETECTOR HOUSING NUMBER         :    2942
        POWERED GAMMA-GAMMA DETECTOR NUMBER :        2710
        LDT LOGGING SOURCE NUMBER               :    6929
        LDT CALIBRATION MODE                    :    WATE
        MUD DENSITY                             :    8.00000    LB/G

              M E A S U R E D
            BKGD   AL+FE     AL   UNITS
     LL     19.0    85.3   94.4    CPS
     LU     72.0   130.3  145.2    CPS
     LS     55.0   150.6  167.1    CPS
   LITH      5.5    32.6   48.4    CPS
    SS1     14.0   177.0  197.5    CPS
    SS2      9.5   250.0  273.0    CPS


  CNTH                DETECTOR CALIBRATION SUMMARY

               TANK                            JIG
          INPUT   CALIBRATED          MEASURED   CALIBRATED
   NRAT   2.17500  2.158                2.162       2.145


  LDTC                CALIPER CALIBRATION SUMMARY

              MEASURED                        CALIBRATED
            SMALL    LARGE                SMALL      LARGE          UNITS
   CALI     6.90     11.1                 8.00       12.0            IN

    CP 28.2A            FILE    1        06-SEP-86 19:28
```

```
                    AFTER SURVEY TOOL CHECK SUMMARY


  PERFORMED:      06-SEP-86 20:59
  PROGRAM FILE: LEP     (VERSION     28.2A    85/07/10)


LDTC                           TOOL   CHECK

          DRS SONDE NUMBER                           :    3756
          NUCLEAR SERVICE CARTRIDGE NUMBER           :    1955
          POWERED DETECTOR HOUSING NUMBER            :    2942
          POWERED GAMMA-GAMMA DETECTOR NUMBER        :    2710
          LDT LOGGING SOURCE NUMBER                  :    6929
          LDT CALIBRATION MODE                       :    WATE
          MUD DENSITY                                :    8.00000    LB/G

             BACKGROUND MEASURED
             BEFORE          AFTER          UNITS
     LL      19.04           18.98           CPS
     LU      72.00           72.56           CPS
     LS      55.03           55.28           CPS
   LITH       5.546           5.57           CPS
    SS1      14.02           13.96           CPS
    SS2       9.453           9.33           CPS


CNTH                           TOOL   CHECK

                        JIG
                 BEFORE        AFTER
   NRAT          2.145         2.143

   POROSITY CHANGE (LIME :    .000

    CP 28.2A            FILE     6        06-SEP-86 20:59


                    SHOP SUMMARY


   PERFORMED:      17-AUG-86 11:14
   PROGRAM FILE: CCSHOP  (VERSION     28.2A    85/07/10)


LDTC                   DETECTOR CALIBRATION SUMMARY

          DRS SONDE NUMBER                           :    3756
          NUCLEAR SERVICE CARTRIDGE NUMBER           :    1955
          POWERED DETECTOR HOUSING NUMBER            :    2942
          POWERED GAMMA-GAMMA DETECTOR NUMBER        :    2710
          LDT LOGGING SOURCE NUMBER                  :    6929
          LDT CALIBRATION MODE                       :    WATE
          MUD DENSITY                                :    8.00000    LB/G

           MASTER  CALIBRATED
           BKGD  AL+FE     AL   UNITS
     LL    13.7    35.3    84.4   CPS
     LU    71.3   131.1   145.2   CPS
     LS    54.1   151.8   167.1   CPS
   LITH     5.3    32.5    48.4   CPS
    SS1    13.3   177.1   157.5   CPS
    SS2     9.3   250.1   273.2   CPS

           SPECTRUM QUALITY RATIOS
   QRLS       .6497
   QRSS       .7228
   QPLI       .2998
   QLIR      1.3354
   [illegible]         .3344
```

```
                    SHOP SUMMARY

     PERFORMED:     14-AUG-86 15:02
     PROGRAM FILE:  CCSHOP (VERSION    28.2A   85/07/10)

   CNTH                DETECTOR CALIBRATION SUMMARY

                     TANK                        JIG
          MEASURED   CALIBRATED        MEASURED    CALIBRATED

     NRAT    2.175       2.150           2.134        2.118

                        (CMC:1263, CND:3200)
```

COMPANY ARCO OIL AND GAS COMPANY

WELL C.F.I. NO. 33-9

FIELD MIST

COUNTY COLUMBIA STATE OREGON

SCHL. FR [illegible]
SCHL. TD 3234
DRLR. TD 3243

Elev: KB 1122.5
DF 1121.5
GL 1110.5