Scanned

Schlumberger

COMPENSATED NEUTRON-LITHO DENSITY

COUNTY COLUMBIA
FIELD MIST
LOCATION SEE REMARKS
WELL FOSTER 42-30-65
COMPANY ARCO OIL AND GAS COMPANY

COMPANY ARCO OIL AND GAS COMPANY

WELL FOSTER 42-30-65

FIELD MIST

COUNTY COLUMBIA **STATE** OREGON

LOCATION SEE REMARKS

Other Services:
DIL BLT
SHDT
CST

API SERIAL NO.	SECT.	TWP.	RANGE
	30	6N	5W

Permanent Datum GL Elev. 545.5 F
Log Measured From KB 11.0 F above Perm. Datum
Drilling Measured From KB

Elev.: K.B. 556.5 F
D.F. 555.5 F
G.L. 545.5 F

Date	22-NOV-87			
Run No.	ONE			
Depth Driller	2658.0 F			
Depth Logger (Schl.)	2656.0 F			
Btm. Log Interval	2654.0 F			
Top Log Interval	474.0 F			
Casing-Driller	9 5/8 @ 476.0 F	@	@	@
Casing-Logger	474.0 F			
Bit Size	8 1/2			
Type Fluid in Hole	DRISPAC			
Dens. | Visc.	11.40 LB/G	40.0 S		
pH | Fld. Loss	9.5	5.8 C3		
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	2.320 OHMM @	87.0 DEGF	@	
Rmf @ Meas. Temp.	3.240 OHMM @	46.0 DEGF	@	
Rmc @ Meas. Temp.	4.910 OHMM @	46.0 DEGF	@	
Source: Rmf | Rmc	MEAS	MEAS		
Rm @ BHT	2.117 OHMM @	96.0 DEGF	@	
TIME Circulation Ended	20:00 11/22			
TIME Logger on Bottom	01:30			
Max. Rec. Temp.	96.0 DEGF			
Equip. | Location	8504	SACRAMENTO		
Recorded By	KUNKLER			
Witnessed By	ANDERSON			

FOLD HERE

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.	506377		
Drilling Fluid Level	0.0 F		
Salinity	50.0 PPM		
Rmf @ BHT	1.667 OHMM @	96.0 DEGF	@
Rmc @ BHT	2.527 OHMM @	96.0 DEGF	@
Logging Speed	1800.0 F/HR		
Equipment Data			
Tool Number 1	LDT 3775		
Tool Number 2	CNL 1263		
Tool Number 3	SGT 567		
Tool Number 4	CCSM 17		
Tool Number 5			
Tool Number 6			
Tool Number 7			
Tool Number 8			
Tool Number 9			
Tool Number 10			
Tool Number 11			
Tool Number 12			

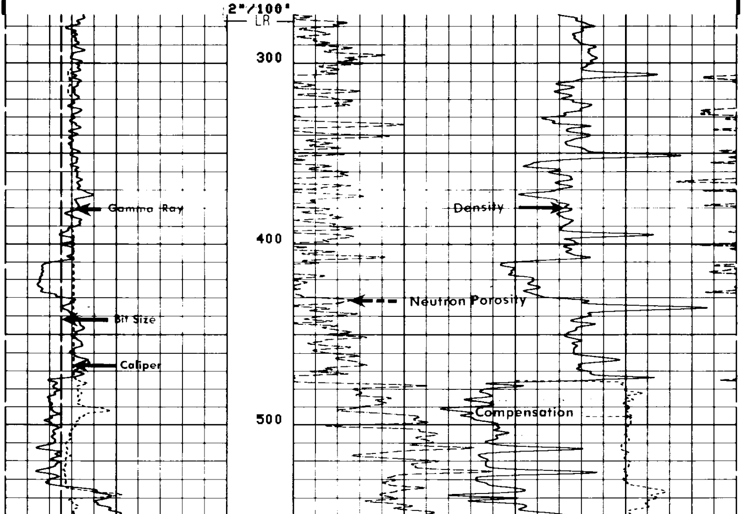
REMARKS:

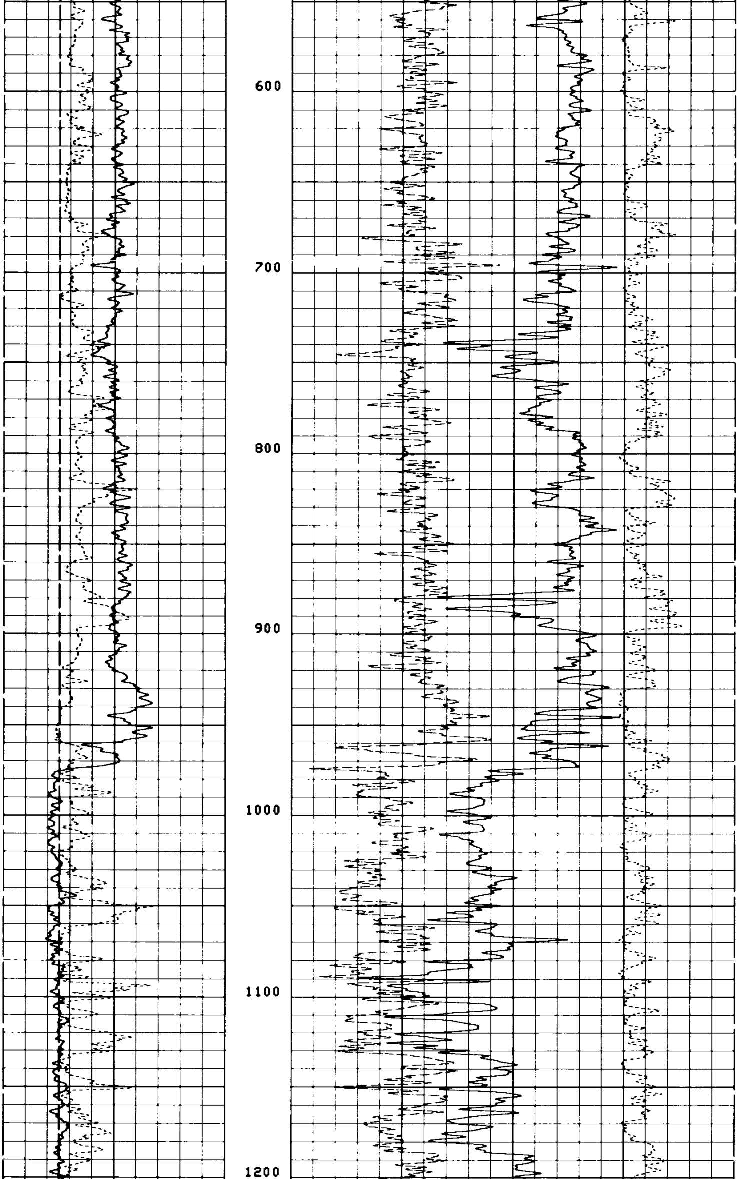
SO. 0 DEG. 39'38"
E 2302.67'
SO. 89 DEG. 20'22"
W 621.59'
FROM NE COR 30-6N-5W

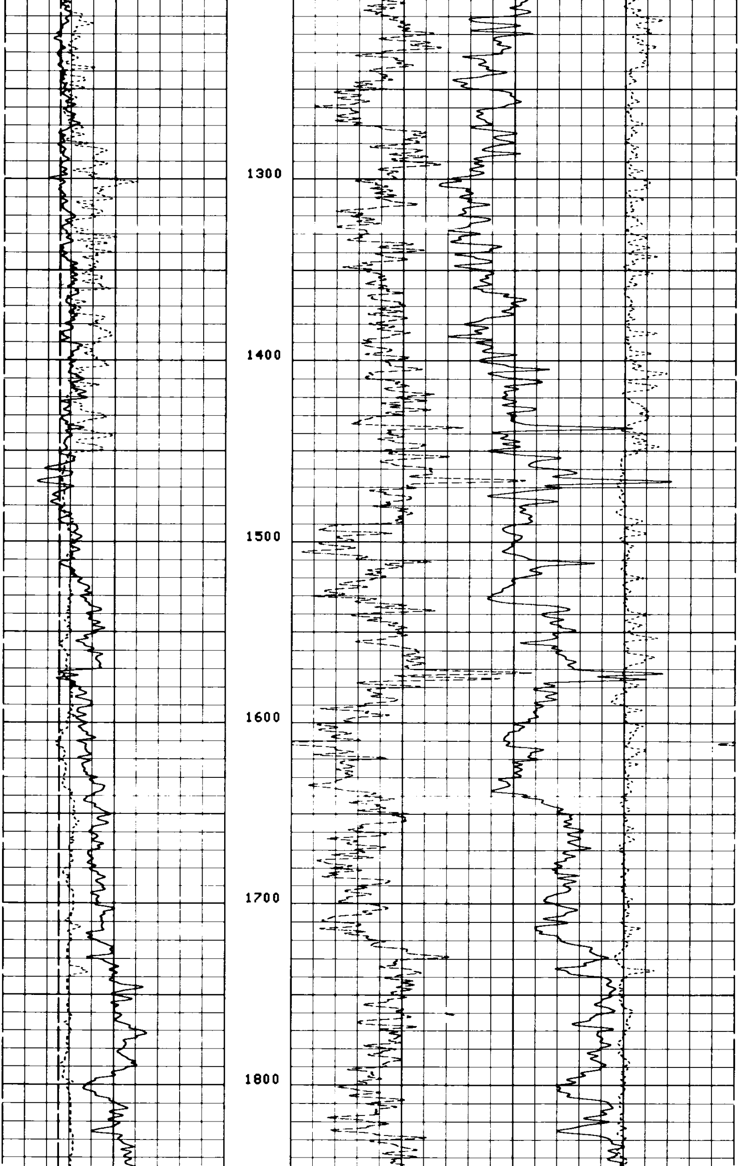
CEMENT VOLUME = 623.945 F3
HOLE VOLUME = 986.177 F3
FROM 2671.5 TO 476.0 FEET

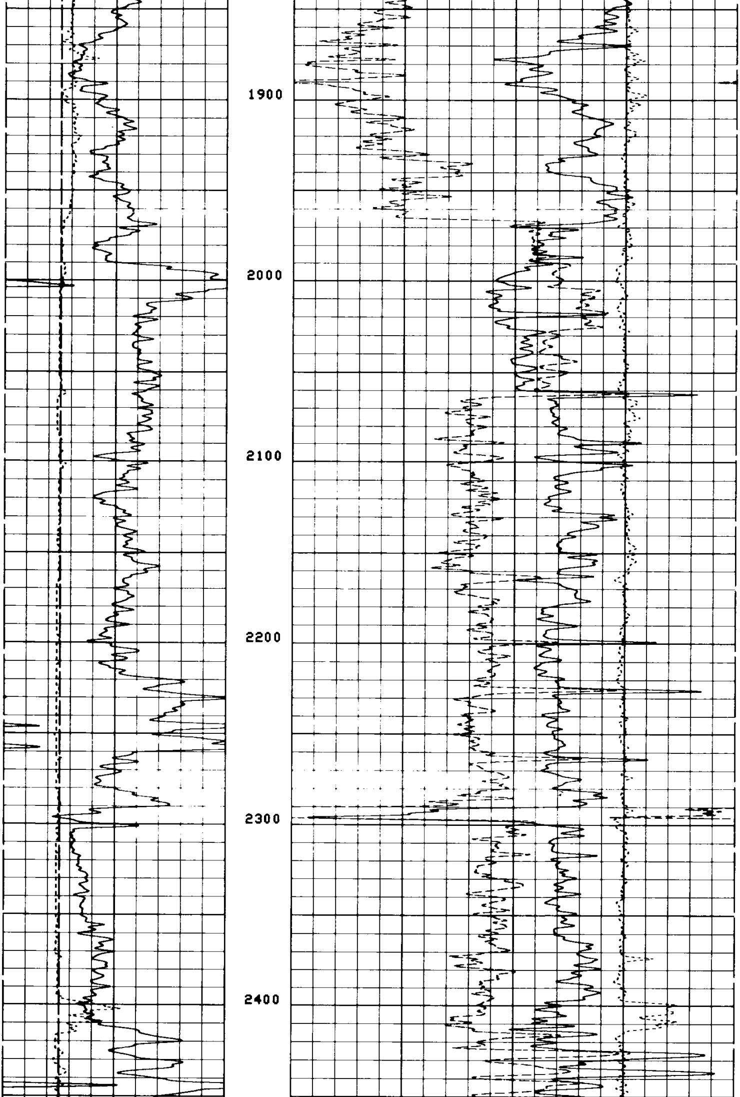
BS (IN)	6.0000	16.000
CALI(IN)	6.0000	16.000
GR (GAPI)	0.0	150.00
DRHO(G/C3)	-.2500	.25000
NPHI	.60000	0.0
RHOB(G/C3)	1.6500	2.6500

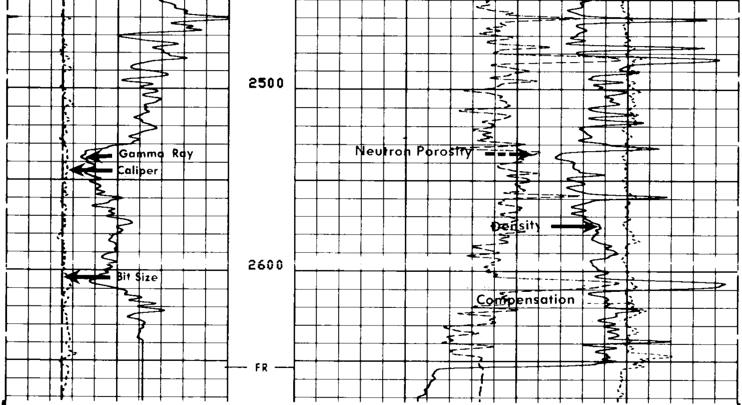
CP 30.22 FILE 29 23-NOV-87 02:30











2"/100'

CP 30.22 FILE 29 23-NOV-87 01:24

BS (IN)		DRHO(G/C3)
6.0000 16.000		-.2500 .25000
CALI(IN)		NPHI
6.0000 16.000		.60000 0.0
GR (GAPI)		RHOB(G/C3)
0.0 150.00		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
BS	8.50000	IN	BHS	OPEN	
HC	CALI		PSNR	2.20500	
FD	1.00000	G/C3	MATR	SAND	
BFM	LIQU		MDEN	2.65000	G/C3
WMUD	11.4000	LB/G	DHC	BS	

CP 30.22 FILE 31 23-NOV-87 02:32

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EVENT MARK SUMMARY:

OUTPUT   INTERVAL          DEPTH TRACK
         BETWEEN PIPS      EDGE

IHV      10.0000 F3        LEFT EDGE
ICV      10.0000 F3        RIGHT EDGE
```

```
CEMENT VOLUME = 623.945 F3
HOLE VOLUME =   986.177 F3
FROM  2671.5 TO   476.0 FEET
```

```
                                                              TENS(LB   )
                                                         10000.              0.0
         BS   (IN   )                                             DRHO(G/C3)
6.0000               16.000                              -.2500          .25000
         CALI(IN   )                            NPHI
6.0000               16.000            .60000                                0.0
         GR   (GAPI)                                     RHOB(G/C3)
0.0                  150.00            1.6500                             2.6500
```

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CP 30.22          FILE   29       23-NOV-87 02:30
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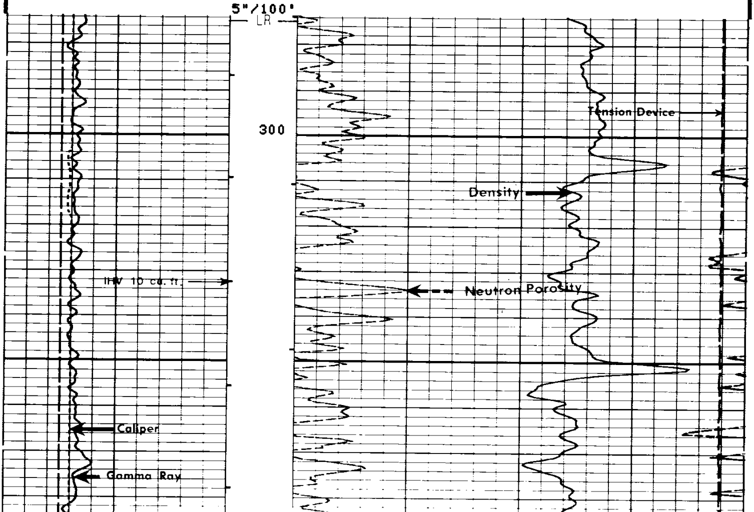
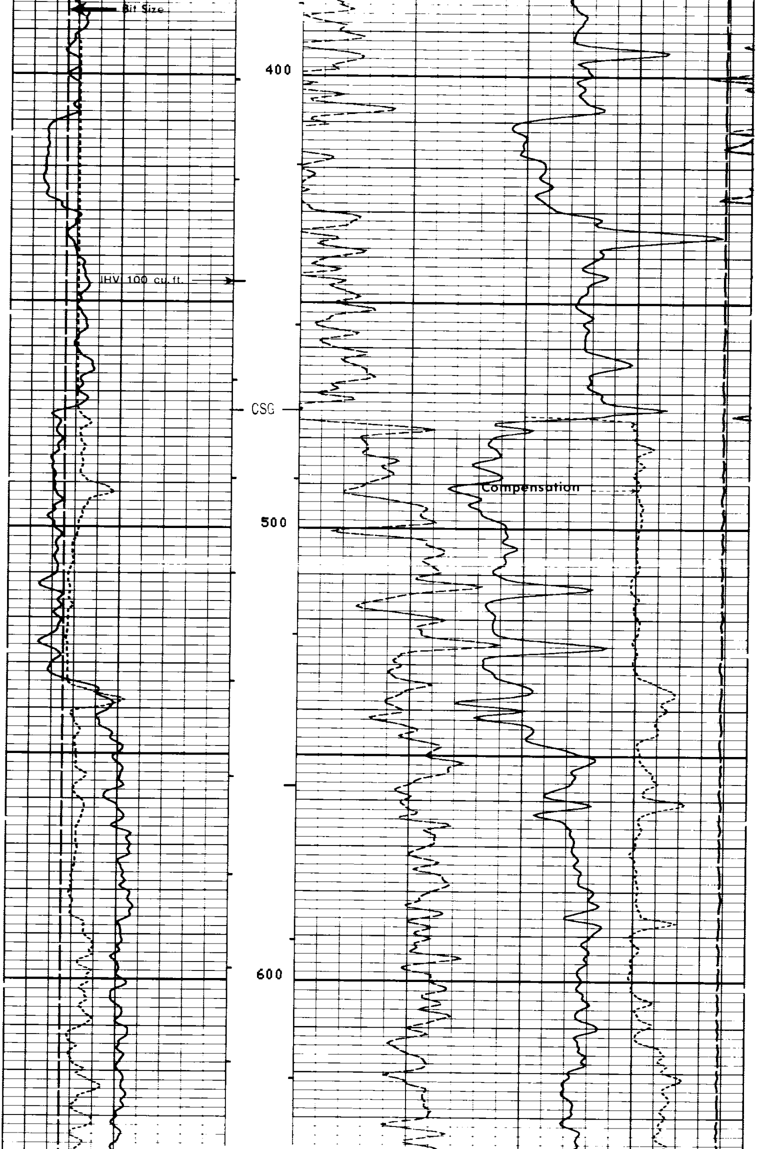
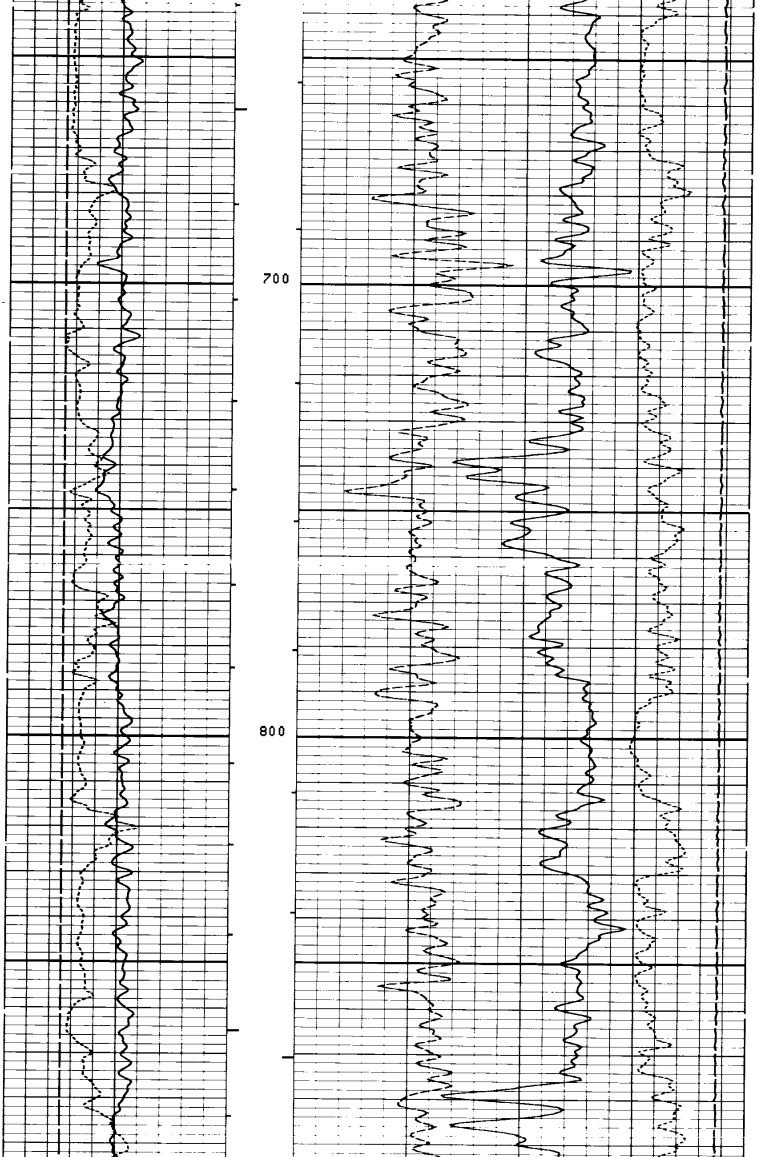
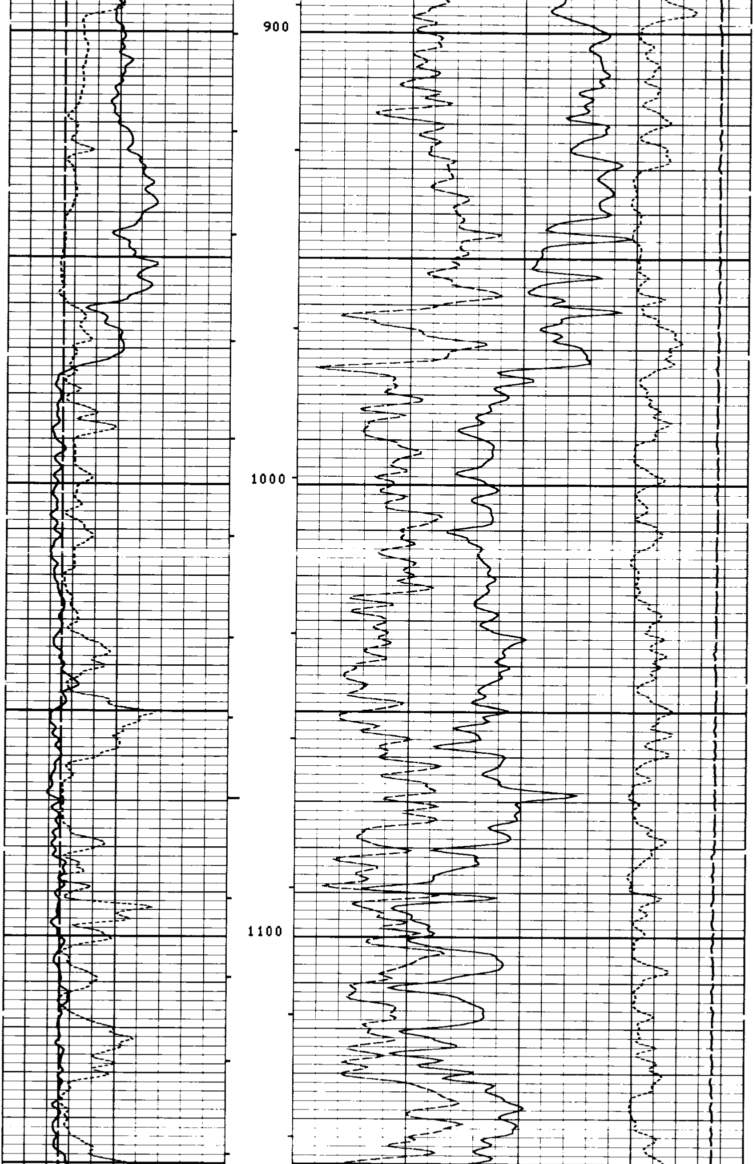
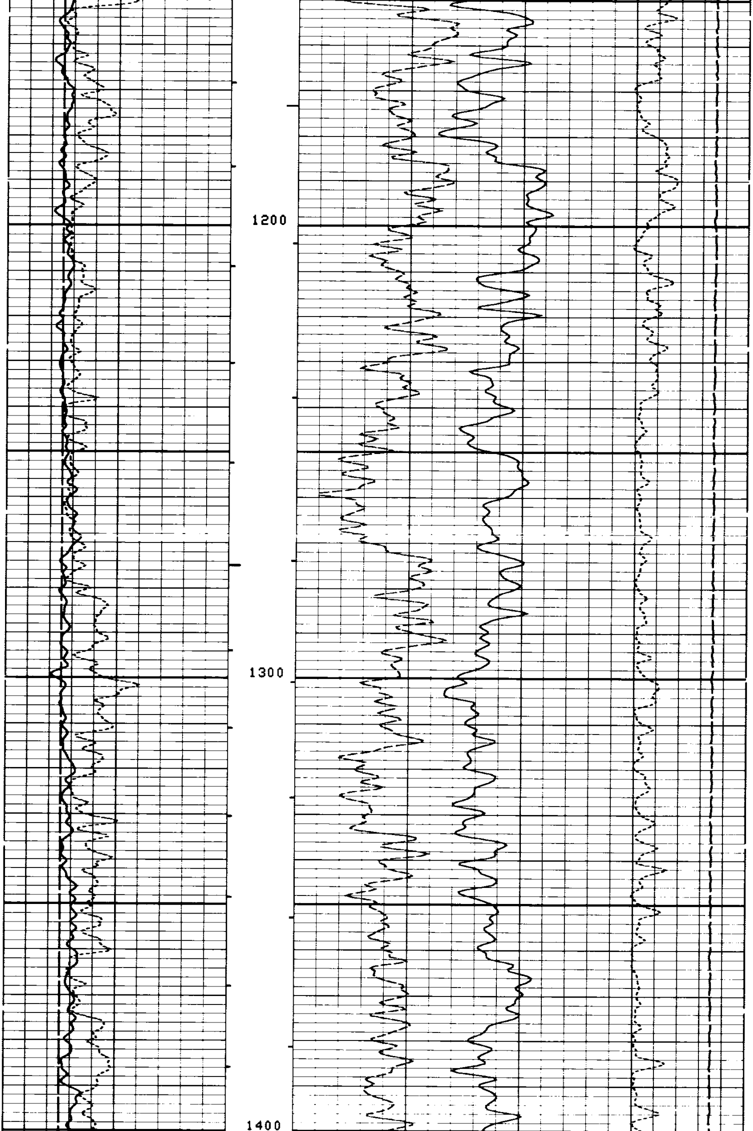
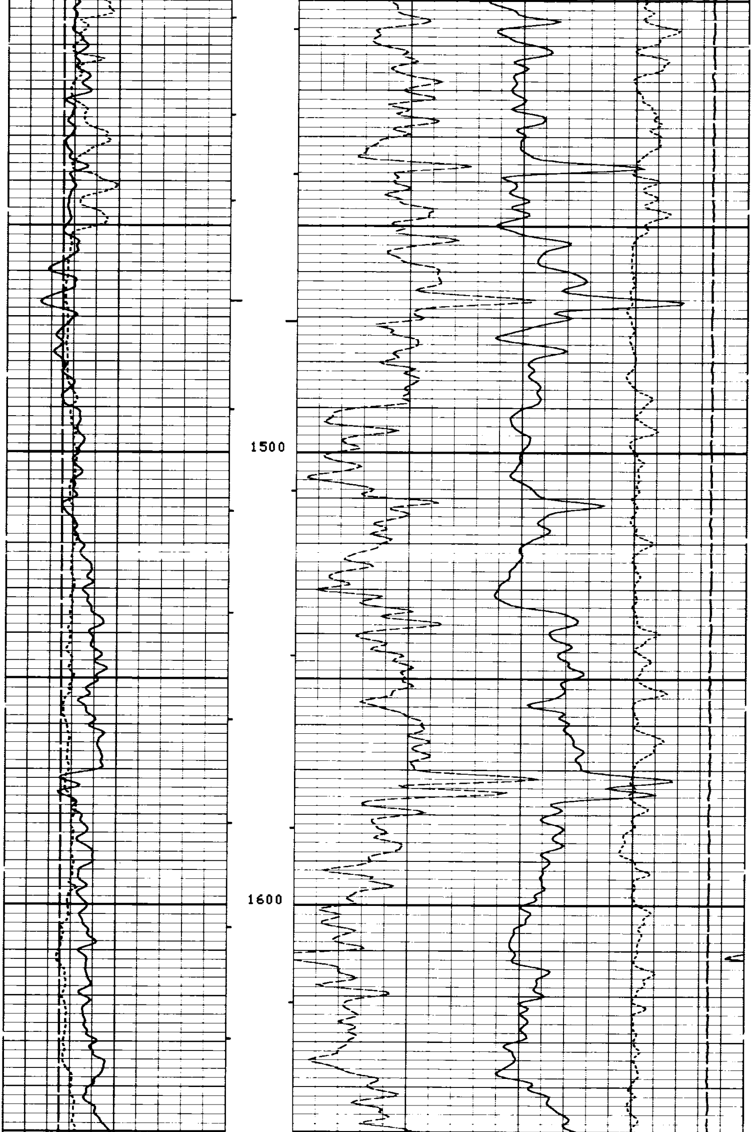


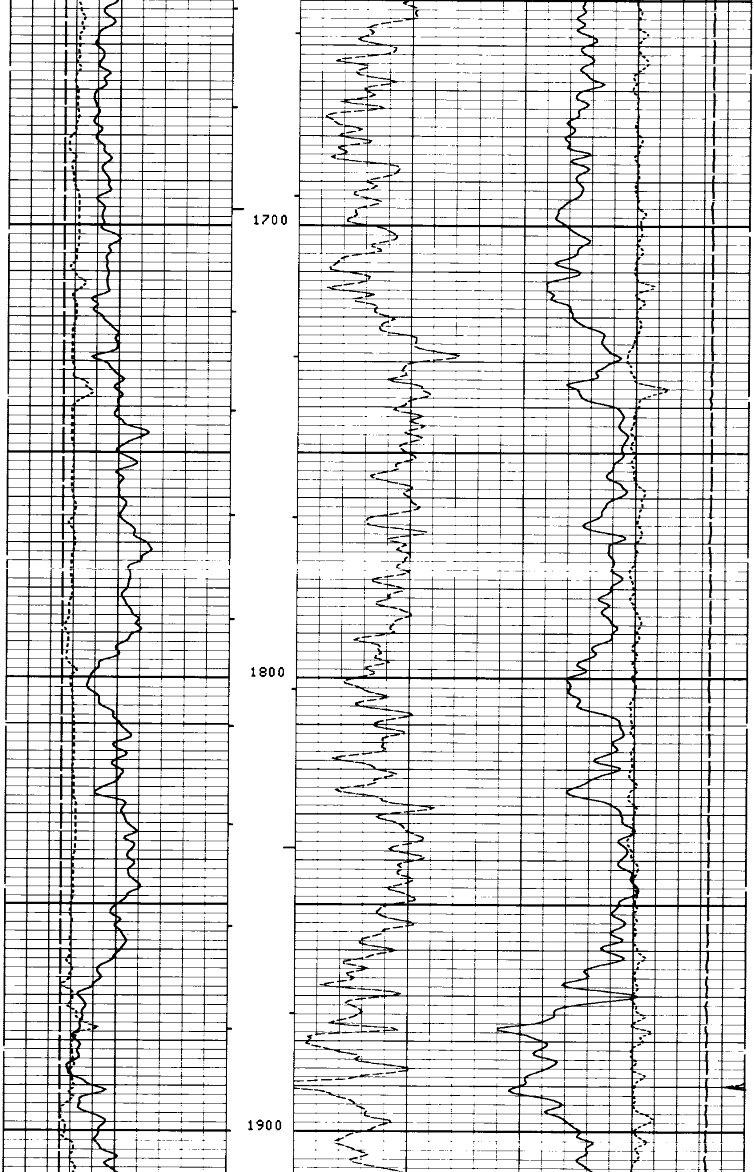


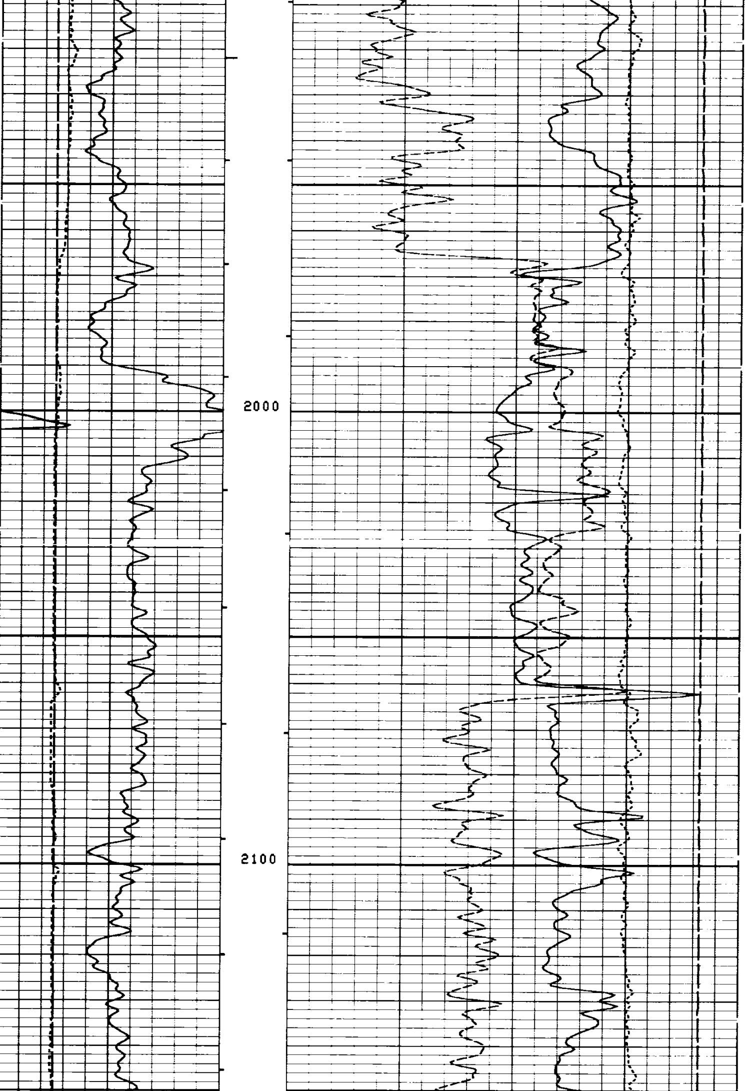


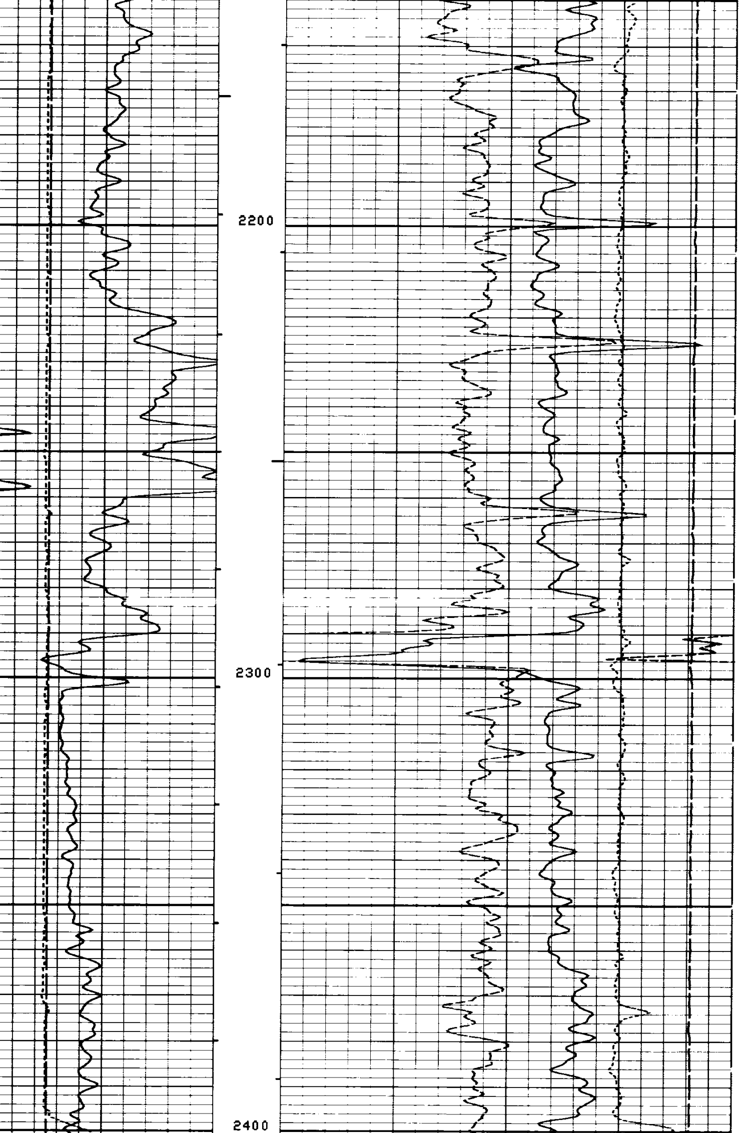


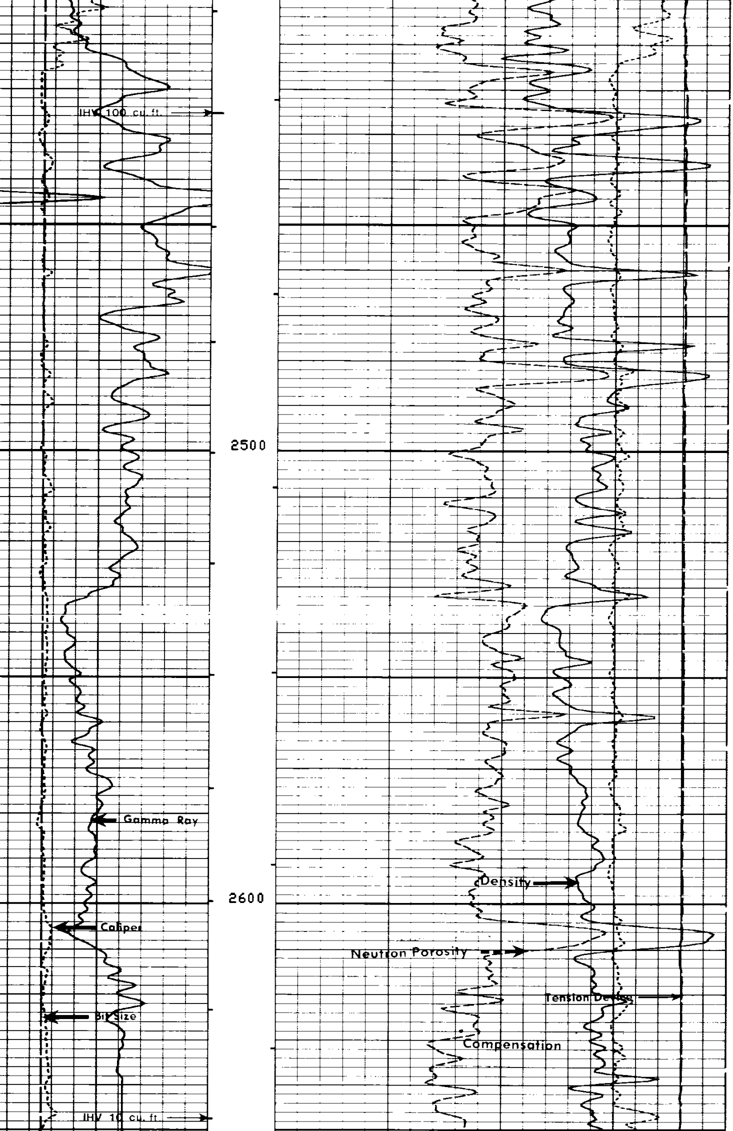


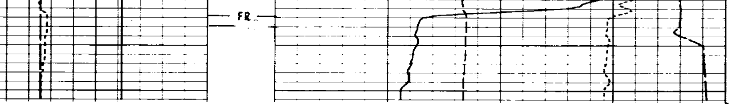












5"/100'

CP 30.22 FILE 29 23-NOV-87 01:24

BS (IN)		TENS(LB)
.0000 16.000		10000. 0.0
CALI(IN)		DRHO(G/C3)
.0000 16.000		-.2500 .25000
GR (GAPI)	NPHI	
.0 150.00	.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
BS	8.50000	IN	BHS	OPEN	
HC	CALI		PSNR	2.20500	
FD	1.00000	G/C3	MATR	SAND	
BFM	LIQU		MDEN	2.65000	G/C3
WMUD	11.4000	LB/G	DHC	BS	

EVENT MARK SUMMARY:

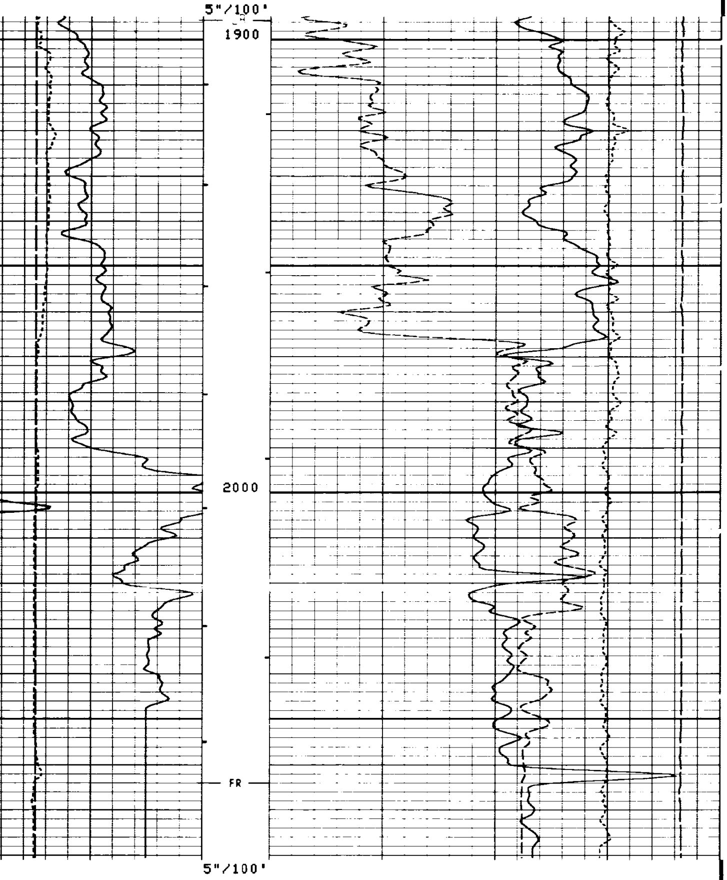
OUTPUT	INTERVAL BETWEEN PIPS	DEPTH TRACK EDGE
IHV	10.0000 F3	LEFT EDGE
ICV	10.0000 F3	RIGHT EDGE

CEMENT VOLUME = 45.9814 F3
HOLE VOLUME = 76.6692 F3
FROM 2080.0 TO 1894.0 FEET

BS (IN)		TENS(LB)
.0000 16.000		10000. 0.0
CALI(IN)		DRHO(G/C3)
.0000 16.000		-.2500 .25000
GR (GAPI)	NPHI	
.0 150.00	.60000 0.0	
	RHOB(G/C3)	
	1.6500 2.6500	

REPEAT SECTION

CP 30.22 FILE 28 23-NOV-87 01:19



CP 30.22 FILE 28 23-NOV-87 01:13

		TENS(LB)	
		10000.	0.0
BS (IN)		DRHO(G/C3)	
.0000	16.000	-.2500	.25000
CALI(IN)		NPHI	
.0000	16.000	.60000	0.0
GR (GAPI)		RHOB(G/C3)	
.0	150.00	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

  CP 30.22          FILE   27      23-NOV-87 01:12


                    5"/100'
                    5"/100'

  CP 30.22          FILE   27      23-NOV-87 01:12

                                                          TENS(LB  )
                                                    10000.             0.0
      BS   (IN  )                                          DRHO(G/C3)
.0000          16.000                               -.2500          .25000
     CALI(IN  )                                NPHI
.0000          16.000      .60000                                      0.0
     GR   (GAPI)                               RHOB(G/C3)
.0             150.00      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

    BS     8.50000    IN                   BHS    OPEN
    HC     CALI                            PSNR   2.20500
    FD     1.00000    G/C3                 MATR   SAND
    BFM    LIQU                            MDEN   2.65000    G/C3
    WMUD   8.00000    LB/G                 DHC    BS


            BEFORE SURVEY CALIBRATION SUMMARY


 PERFORMED:     22-NOV-87 20:43
 PROGRAM FILE: GTS    (VERSION    30.22    87/02/10   87/02/09)


CNTH               DETECTOR CALIBRATION SUMMARY

            TANK                           JIG
        INPUT   CALIBRATED           MEASURED   CALIBRATED
 NRAT   2.20500  2.158                 2.214       2.167


SGTL               DETECTOR CALIBRATION SUMMARY

         MEASURED
        BKGD    JIG          CALIBRATED          UNITS
   GR    30     188              165             GAPI
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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                :    7137
        LDT CALIBRATION MODE                     :    WATE
        MUD DENSITY                              :    8.00000   LB/G

            M E A S U R E D
          BKGD  AL+FE   AL   UNITS
    LL    18.3   83.9   93.3   CPS
    LU    68.6  125.8  139.8   CPS
    LS    52.6  146.8  163.2   CPS
  LITH     5.3   32.0   47.5   CPS
   SS1    13.4  168.6  187.3   CPS
   SS2     9.1  242.5  266.1   CPS

          HV SETTINGS
    HV LS  1409.4   V
    HV SS  1447.5   V


LDTC               CALIPER CALIBRATION SUMMARY

             MEASURED                     CALIBRATED
           SMALL   LARGE               SMALL     LARGE       UNITS
  CALI     7.10    11.6                8.00      12.0         IN

SMALL: 22-NOV-87 20:15  LARGE: 22-NOV-87 20:17  COMP: 22-NOV-87 20:17


               AFTER SURVEY TOOL CHECK SUMMARY


  PERFORMED:     23-NOV-87 02:32
  PROGRAM FILE: GTS    (VERSION    30.22   87/02/10  87/02/09)


CNTH                    TOOL  CHECK

                      JIG
               BEFORE      AFTER
  NRAT         2.167       2.183

  POROSITY CHANGE  (LIME):   .003


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                :    7137
        LDT CALIBRATION MODE                     :    WATE
        MUD DENSITY                              :    11.4000   LB/G

            BACKGROUND MEASURED
            BEFORE       AFTER        UNITS    TOLERANCE ON BEFORE-AFTER
    LL      18.286       18.38         CPS        +- 1.0
    LU      68.575       68.63         CPS        +- 1.0
    LS      52.581       52.70         CPS        +- 1.0
  LITH       5.307        5.15         CPS        +- 0.3
   SS1      13.363       13.39         CPS        +- 0.5
   SS2       9.106        9.09         CPS        +- 0.5

          HV SETTINGS
    HV LS  1411.0   V
    HV SS  1434.3   V

              SHOP SUMMARY


 PERFORMED:     02-NOV-87 10:51
 PROGRAM FILE: CCSHOP (VERSION    30.22   87/02/09  87/02/09)
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DTC                       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               :    7137
       LDT CALIBRATION MODE                    :    WATE

         MASTER  CALIBRATED
         BKGD  AL+FE    AL  UNITS
   LL    18.3   83.9   93.3   CPS
   LU    69.1  125.8  139.8   CPS
   LS    52.9  146.8  163.2   CPS
 LITH     5.3   32.0   47.5   CPS
  SS1    13.3  168.6  187.3   CPS
  SS2     9.0  242.5  266.1   CPS

         HV SETTINGS
   HV LS : 1399.4  V
   HV SS : 1430.8  V

         SPECTRUM QUALITY RATIOS
  QRLS      .6676
  QRSS      .7038
  QRLI      .2913
  QLIR     1.3364
  QR       1.0007

               SHOP SUMMARY

 PERFORMED:    02-NOV-87 11:30
 PROGRAM FILE: CCSHOP (VERSION    30.22   87/02/09  87/02/09)

NTH                       DETECTOR CALIBRATION SUMMARY

             TANK                         JIG
      MEASURED  CALIBRATED       MEASURED   CALIBRATED

 NRAT    2.205       2.158          2.216        2.169

                   (CNC:1263, CNB:2124)
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PANY	ARCO OIL AND GAS COMPANY			SCHL.	FR	2654.0 F
				SCHL.	TD	2656.0 F
L	FOSTER 42-30-65			DRLR.	TD	2658.0 F
D	MIST			Elev:	KB	556.5 F
					DF	555.5 F
NTY	COLUMBIA	STATE	OREGON		GL	546.5 F

Schlumberger

[illegible]

COMPENSATED NEUTRON-
LITHO DENSITY