Schlumberger

DUAL INDUCTION - SFL

WITH LINEAR CORRELATION LOG

COUNTY	COLUMBIA
FIELD	MIST GAS
LOCATION	1779.79'W AND 886.17'S
WELL	"COLUMBIA COUNTY" #31-34-
COMPANY	ARCO OIL AND GAS COMPANY

COMPANY ARCO OIL AND GAS COMPANY

WELL "COLUMBIA COUNTY" #31-34-65

FIELD MIST GAS

COUNTY COLUMBIA **STATE** OREGON

LOCATION 1779.79'W AND 886.17'S
OF NE CORNER

Other Services:
BHC
LDT-CNL-GR

API SERIAL NO.	SECT.	TWP.	RANGE
	34	6N	5W

Permanent Datum	GL	**Elev.**	902.5 F	**Elev.:K.B.** 912.5 F
Log Measured From	KB	10.0 F	**above Perm. Datum**	**D.F.** 911.5 F
Drilling Measured From	KB			**G.L.** 902.5 F

Date	04-OCT-87			
Run No.	ONE			
Depth Driller	2344.0 F			
Depth Logger (Schl.)	2336.0 F			
Btm. Log Interval	2330.0 F			
Top Log Interval	472.0 F			
Casing-Driller	9 5/8" @ 472.0 F	@	@	@
Casing-Logger	472.0 F			
Bit Size	8 1/2"			
Type Fluid in Hole	POLYMER			
Dens. / **Visc.**	10.60 LB/G	43.0 S		
pH / **Fld. Loss**	8.4	6.0 C3		
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	2.550 OHMM @ 73.0 DEGF		@	
Rmf @ Meas. Temp.	3.390 OHMM @ 54.0 DEGF		@	
Rmc @ Meas. Temp.	5.290 OHMM @ 54.0 DEGF		@	
Source: Rmf / **Rmc**	MEASURED	MEASURED		
Rm @ BHT	2.061 OHMM @ 92.0 DEGF		@	
TIME **Circulation Ended**	06:00 10-5			
TIME **Logger on Bottom**	08:39 10-5			
Max. Rec. Temp.	92.0 DEGF			
Equip. / **Location**	8504	SACRAMENTO		
Recorded By	SCOTT PILCH			
Witnessed By	MIKE 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 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.	526354	
Drilling Fluid Level		
Salinity		
Rmf @ BHT	2.089 OHMM @ 92.0 DEGF	@
Rmc @ BHT	3.260 OHMM @ 92.0 DEGF	@
Logging Speed	4000.0 F/HR	
Equipment Data		
Tool Number 1	DIS-EC 2179	
Tool Number 2	DIC-DA 2230	
Tool Number 3	MCD-DA 1237	
Tool Number 4	SLS-RC 525	
Tool Number 5	SLC-FA 1321	
Tool Number 6	IEM-BD 304	
Tool Number 7	SLM-DA 443	
Tool Number 8		
Tool Number 9		
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

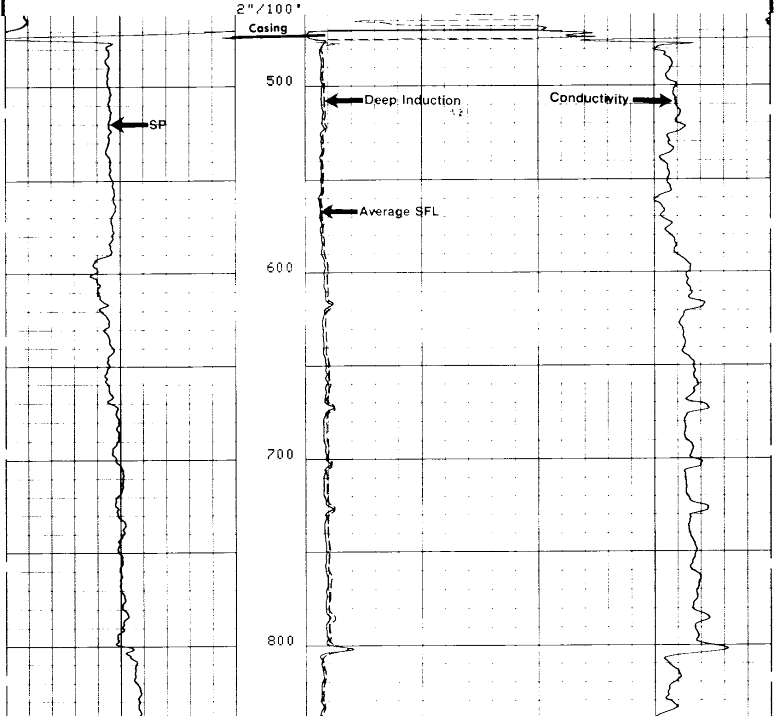
INDUCTION AND SONIC RUN IN COMBINATION.
SONIC CENTRALIZED WITH 2 CME-Z'S AND 1 FIN.
1.5" STAND-OFF USED ON DIL.
MCD CALIPER COLLAPSED DUE TO HOLE DEVIATION.
MAXIMUM DEVIATION 30 DEGREES.
THANK YOU FOR USING SCHLUMBERGER.
CREW: GLEN KINION AND STEVE SALVATO

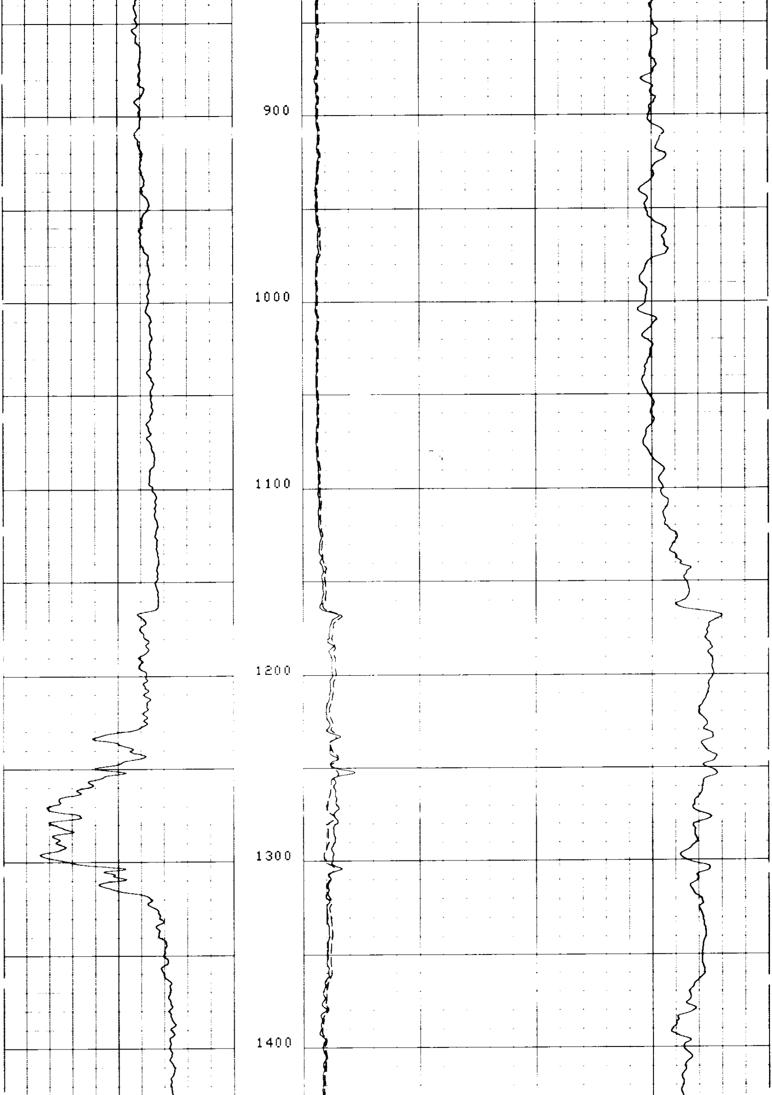
		ILD (OHMM)	
		0.0 30.000	
SP (MV)		SFLA(OHMM)	CILD(MMHO)
-120.0 -20.00		0.0 30.000	1000.0 0.0

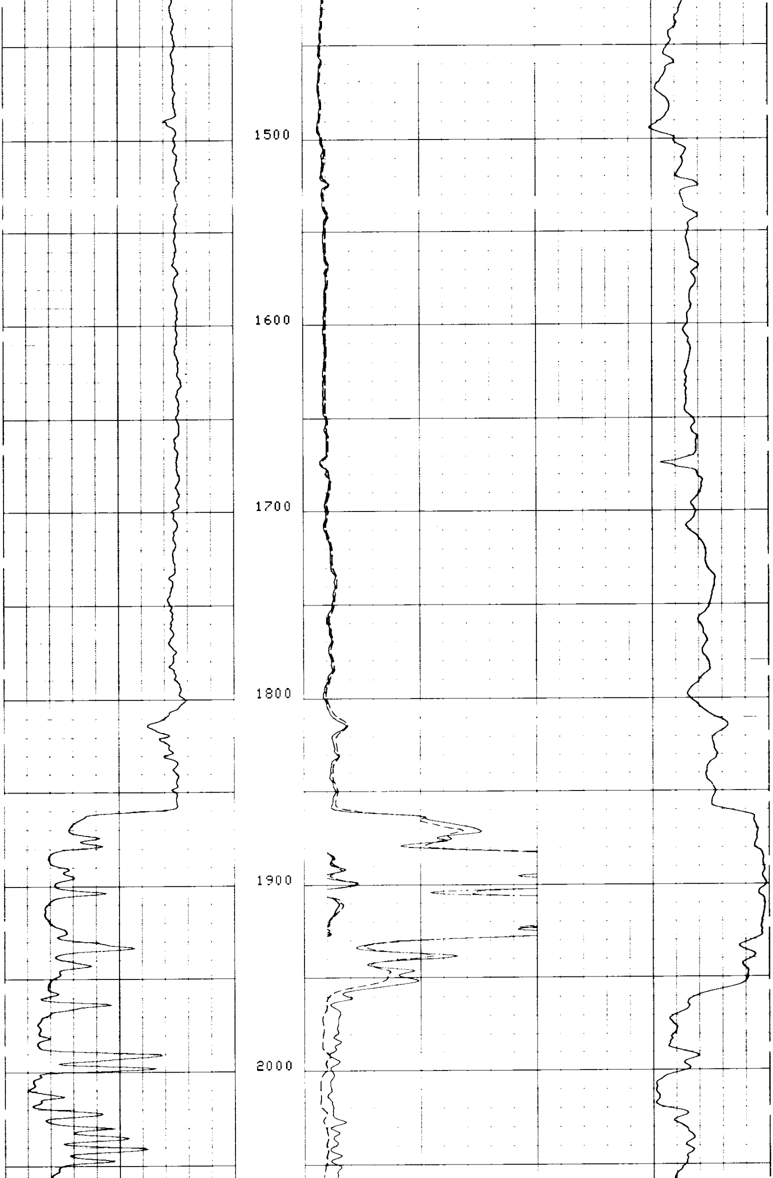
CP 30.22 FILE 33 05-OCT-87 14:39

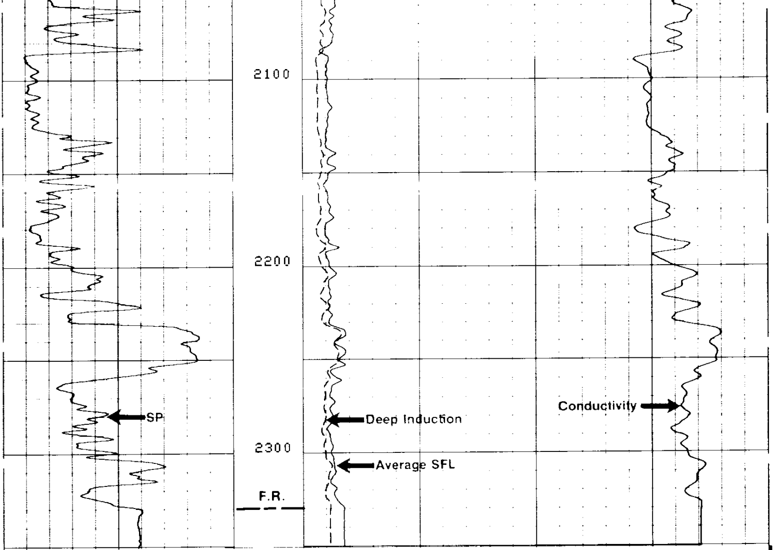
INPUT FILES
6

DATA ACQUIRED
05-OCT-87 09:13









2"/100'

CP 30.22 FILE 33 05-OCT-87 14:36

INPUT FILES
6

DATA ACQUIRED
05-OCT-87 08:39

ILD (OHMM)
0.0 30.000

SP (MV)
-120.0 -20.00

SFLA(OHMM)
0.0 30.000

CILD(MMHO)
1000.0 0.0

SENSOR MEASURE POINT TO TOOL ZERO

SRAT	41.4	FEET	AMPL	43.8	FEET
TT1	42.8	FEET	CBL	43.8	FEET
TT3	40.1	FEET	TT2	43.8	FEET
T0	43.8	FEET	TT4	39.1	FEET
SLTT	43.8	FEET	TT	43.8	FEET
CALI	31.8	FEET	SCBL	43.8	FEET
ILM	5.8	FEET	ILD	9.4	FEET
SP	2.5	FEET	SFL	6.4	FEET
TENS	2.5	FEET	SPAR	2.5	FEET
NOIS	2.5	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	8.50000	IN	BHS	OPEN	
SPFS	R-H		FPHI	SPHI	
DTM	56.0000	US/F	CDTS	100.000	
DDEL	200	US	DTF	189.000	US/F
DWCO	512		DSIN	5	US
SBR	1.00000	OHMM	DSEC	3.80000	MMHO
DO	0.0	F	MSEC	7.40000	MMHO
PP	NORM				

DATA NOT RECORDED

CEMENT VOLUME
HOLE VOLUME =
FROM 2350.0 TO 472.0 FEET

TENS(LB) 10500. 500.00

ILD (OHMM) .20000 2000.0

ILM (OHMM) .20000 2000.0

SFLU(OHMM) .20000 2000.0

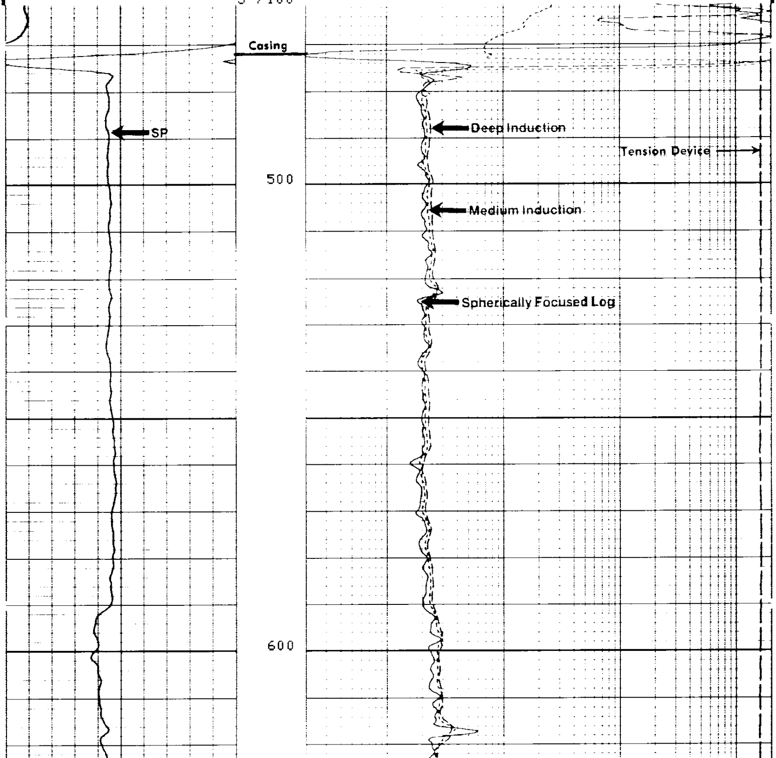
SP (MV) -120.0 -20.00

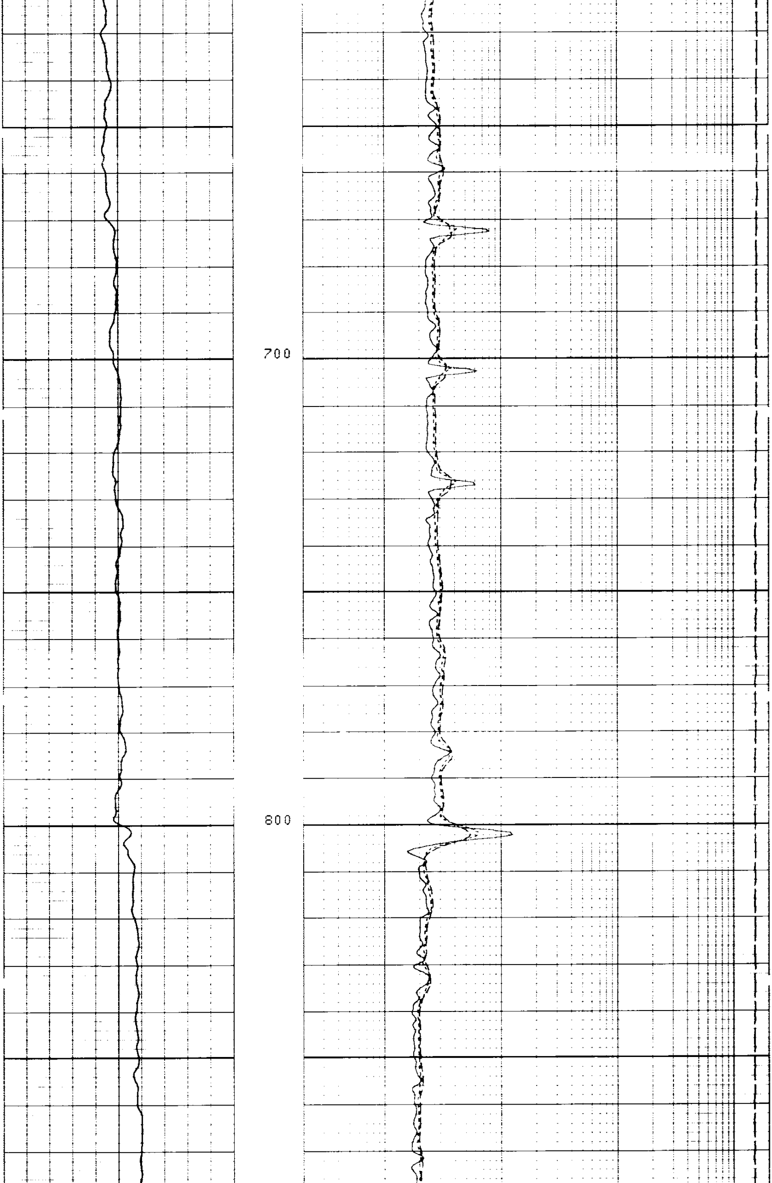
CP 30.22 FILE 32 05-OCT-87 14:34

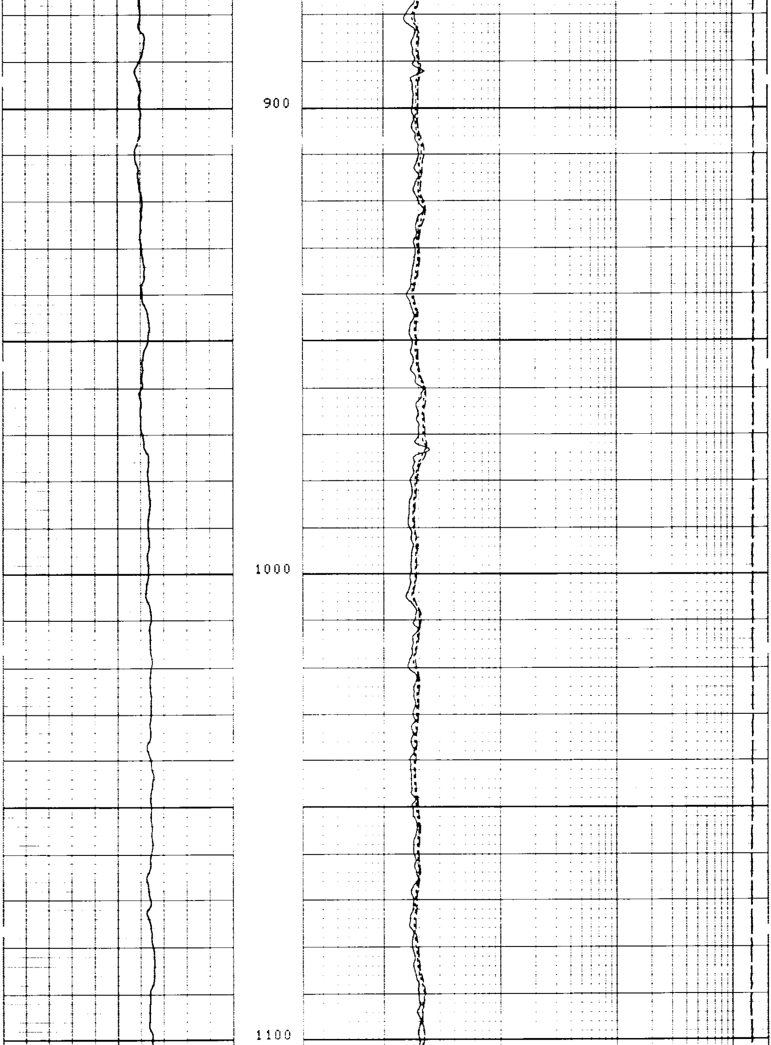
INPUT FILES
6

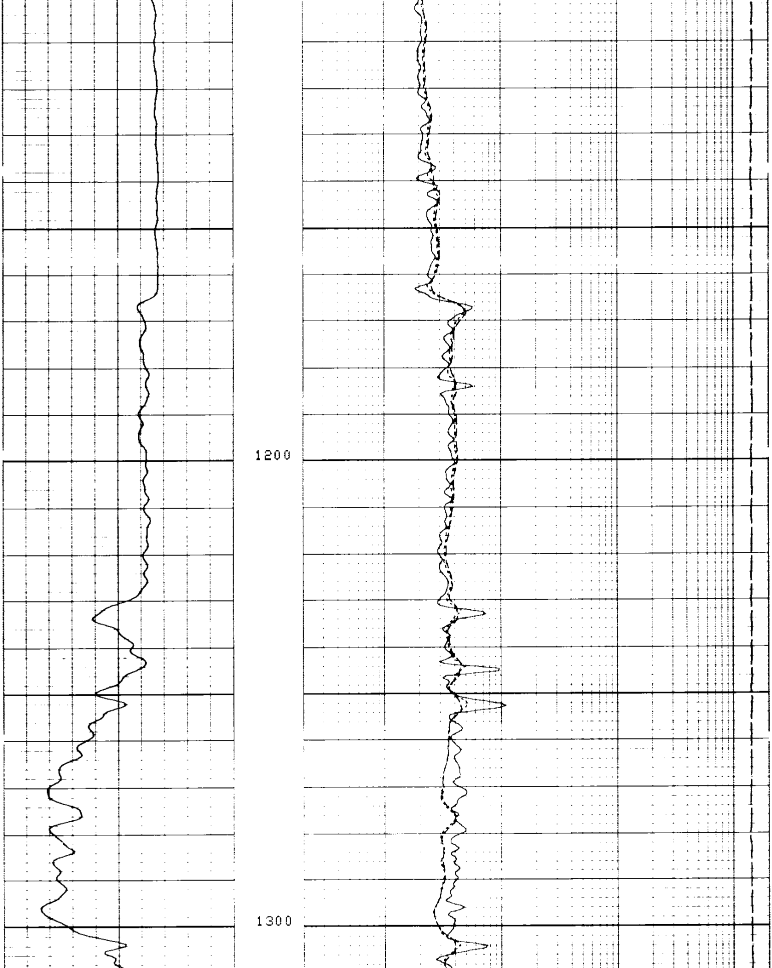
DATA ACQUIRED
05-OCT-87 09:13

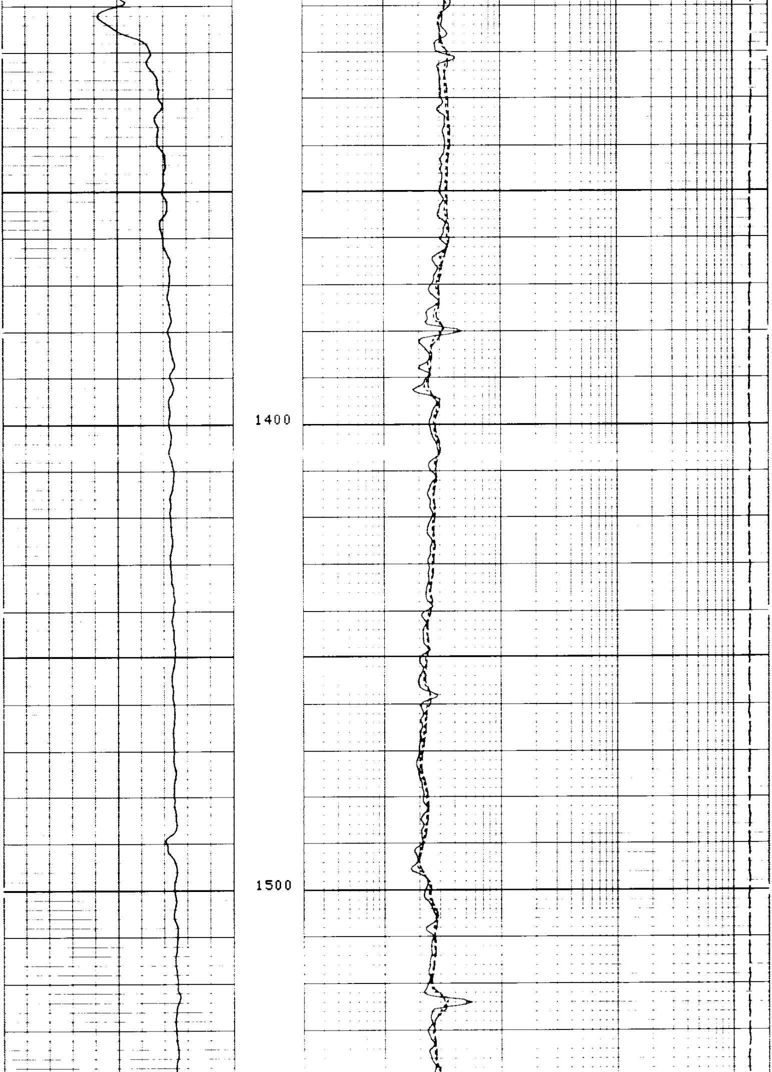
5"/100'

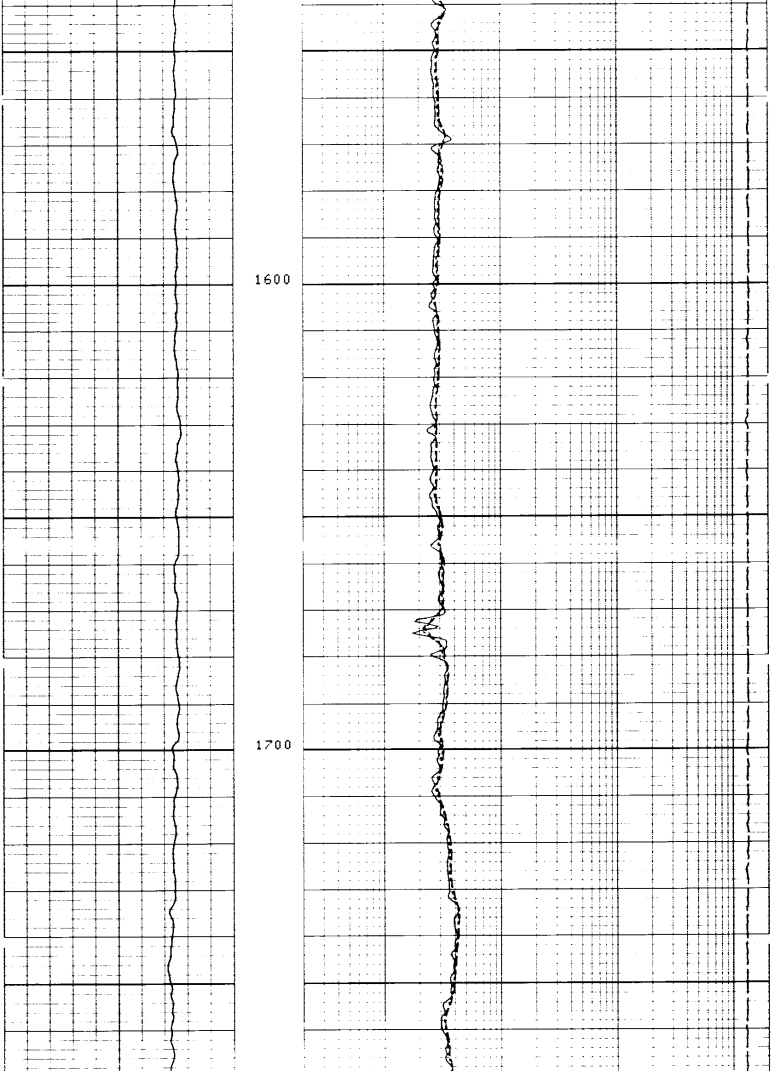


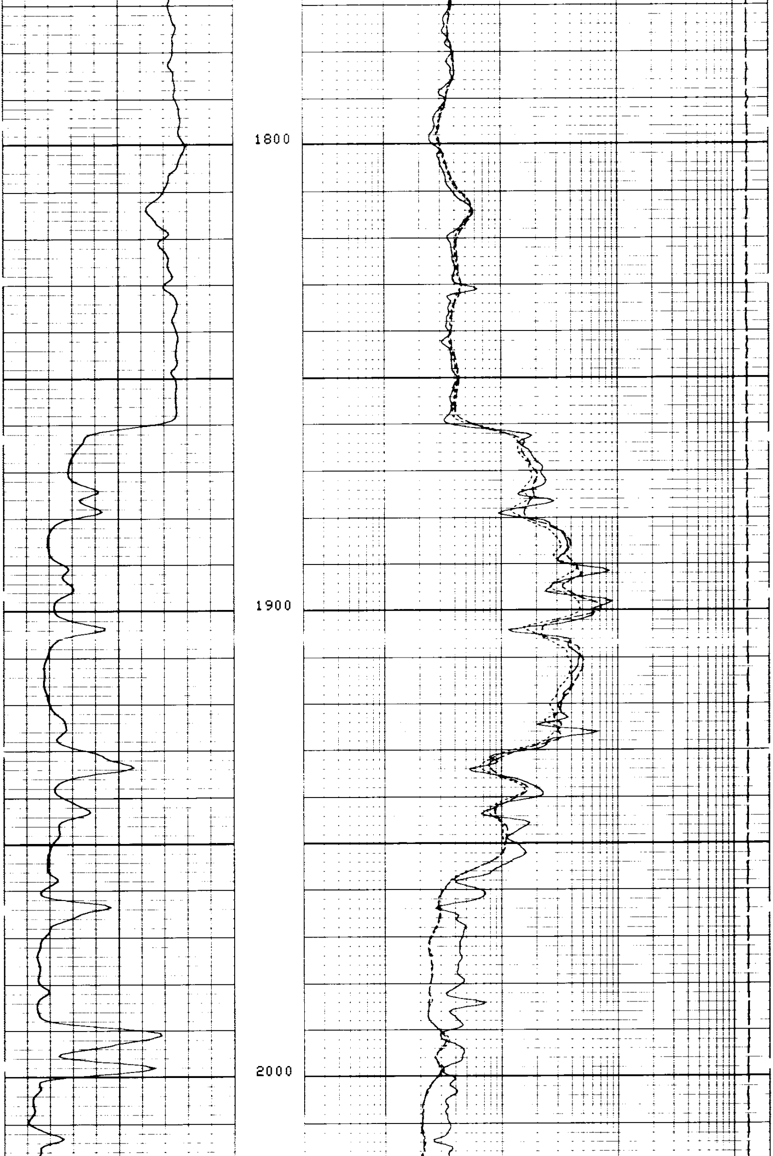


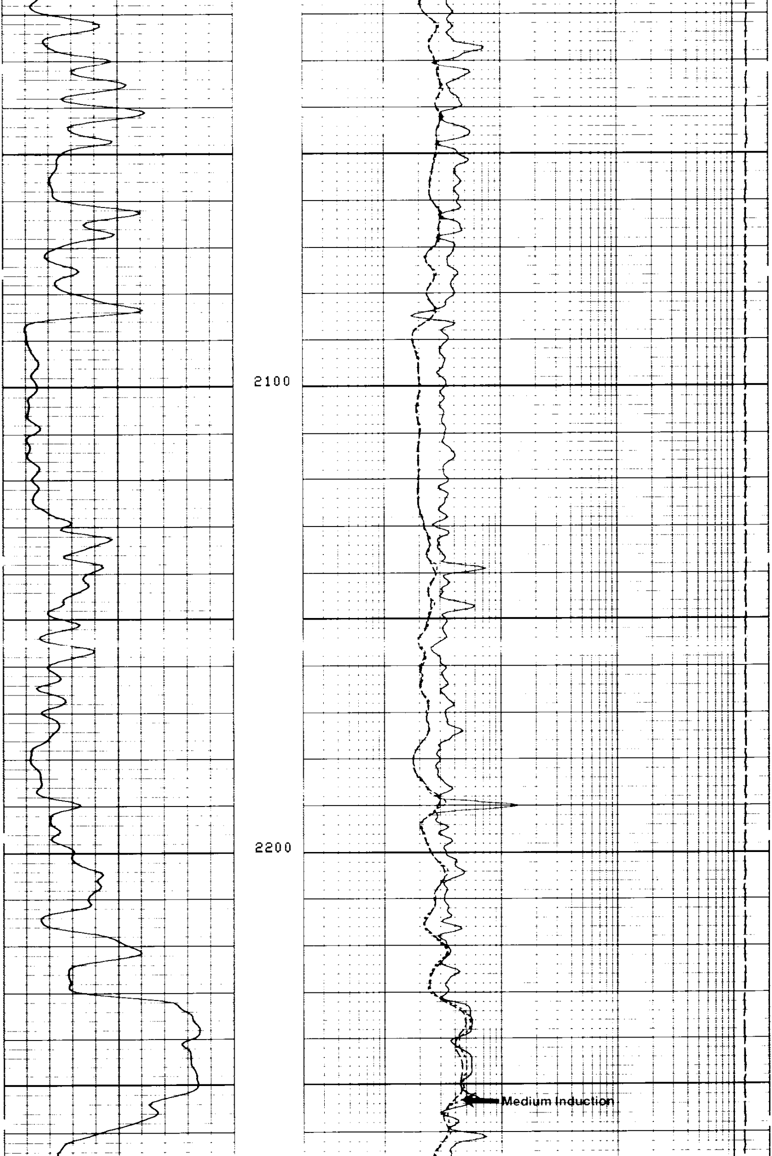


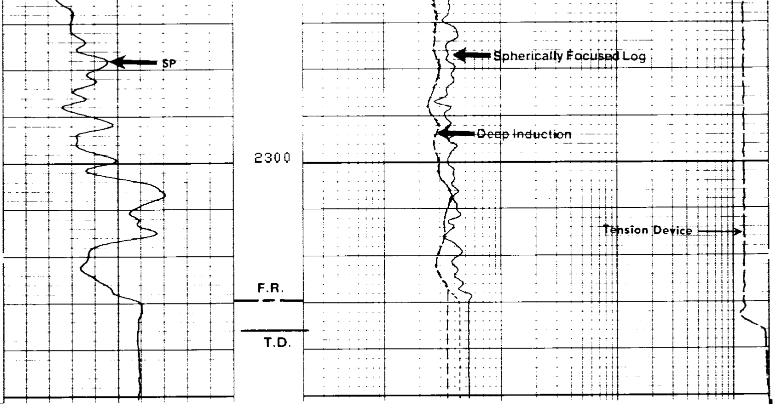












5"/100'

CP 30.22 FILE 32 05-OCT-87 14:29

INPUT FILES
6

DATA ACQUIRED
05-OCT-87 08:39

TENS(LB)
10500. 500.00

ILD (OHMM)
.20000 2000.0

ILM (OHMM)
.20000 2000.0

SFLU(OHMM)
.20000 2000.0

SP (MV)
-120.0 -20.00

SENSOR MEASURE POINT TO TOOL ZERO

SRAT	41.4	FEET	AMPL	43.8	FEET
TT1	42.8	FEET	CBL	43.8	FEET
TT3	40.1	FEET	TT2	43.8	FEET
T0	43.8	FEET	TT4	39.1	FEET
SLTT	43.8	FEET	TT	43.8	FEET
CALI	31.8	FEET	SCBL	43.8	FEET
ILM	5.8	FEET	ILD	9.4	FEET
SP	2.5	FEET	SFL	6.4	FEET
TENS	2.5	FEET	SPAR	2.5	FEET
NOIS	2.5	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	8.50000	IN	BHS	OPEN	
SPFS	R-H		FPHI	SPHI	
DTM	56.0000	US/F	CDTS	100.000	
DDEL	200	US	DTF	189.000	US/F
DWCO	512		DSIN	5	US
SBR	1.00000	OHMM	DSEC	3.80000	MMHO
DO	0.0	F	MSEC	7.40000	MMHO
PP	NORM				

DATA NOT RECORDED

CEMENT VOLUME =
HOLE VOLUME =
FROM 2052.5 TO 1842.0 FEET

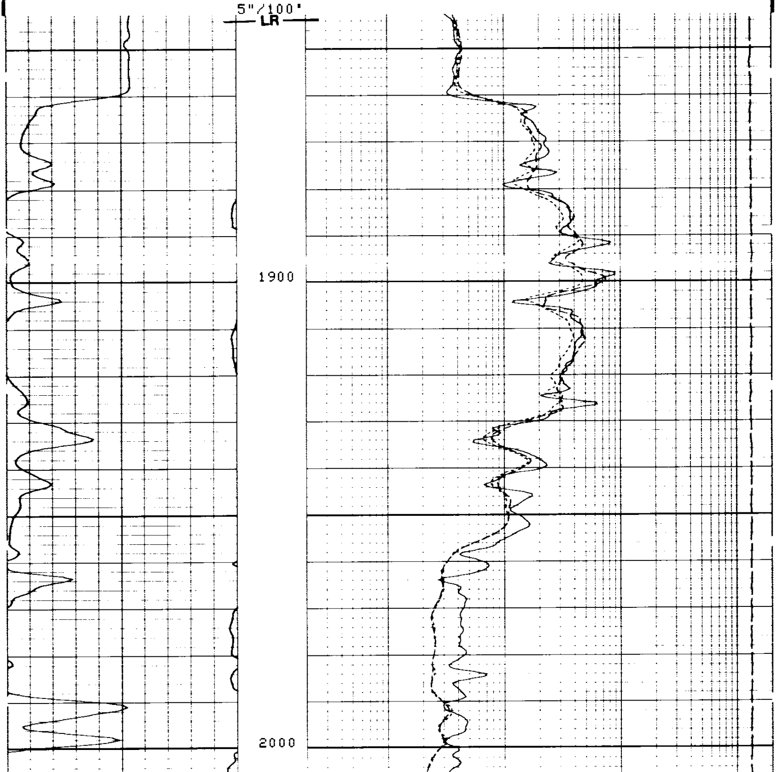
TENS(LB)
10500. 500.00
ILD (OHMM)
.20000 2000.0
ILM (OHMM)
.20000 2000.0
SP (MV)
-120.0 -20.00
SFLU(OHMM)
.20000 2000.0

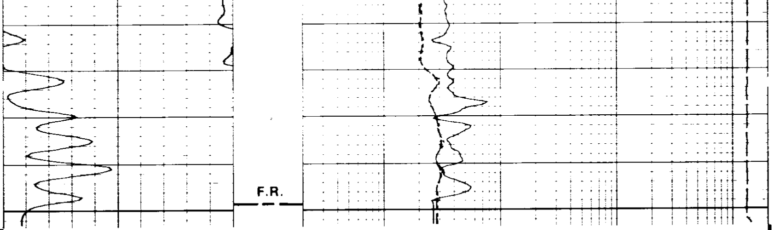
REPEAT SECTION

CP 30.22 FILE 31 05-OCT-87 14:29

INPUT FILES
5

DATA ACQUIRED
05-OCT-87 08:21





5"/100'

CP 30.22 FILE 31 05-OCT-87 14:28

INPUT FILES
5

DATA ACQUIRED
05-OCT-87 08:15

TENS(LB)
10500. 500.00

ILD (OHMM)
.20000 2000.0

ILM (OHMM)
.20000 2000.0

SP (MV)
-120.0 -20.00

SFLU(OHMM)
.20000 2000.0

SENSOR MEASURE POINT TO TOOL ZERO

SRAT	41.4	FEET	AMPL	43.8	FEET
TT1	42.8	FEET	CBL	43.8	FEET
TT3	40.1	FEET	TT2	43.8	FEET
TO	43.8	FEET	TT4	39.1	FEET
SLTT	43.8	FEET	TT	43.8	FEET
CALI	31.8	FEET	SCBL	43.8	FEET
ILM	5.8	FEET	ILD	9.4	FEET
SP	2.5	FEET	SFL	6.4	FEET
TENS	2.5	FEET	SPAR	2.5	FEET
NOIS	2.5	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
BS	8.50000	IN	BHS	OPEN	
SPFS	R-H		FPHI	SPHI	
DTM	56.0000	US/F	CDTS	100.000	
DDEL	200	US	DTF	189.000	US/F
DWCO	512		DSIN	5	US
SBR	1.00000	OHMM	DSEC	3.80000	MMHO
DO	0.0	F	MSEC	7.40000	MMHO
PP	NORM				

DATA NOT RECORDED

BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 05-OCT-87 08:00
PROGRAM FILE: ISN (VERSION 30.22 87/02/10 87/02/09)

```
DITD                ELECTRONICS CALIBRATION SUMMARY

              MEASURED                          CALIBRATED
           ZERO     PLUS                    ZERO        PLUS          UNITS
   ILD     1.56     482.1                   0.0         500.3          MMHO
   ILM      .45     491.8                   0.0         496.2          MMHO
   SFL      .47     531.8                   0.0         500.0          MMHO

ILD SONDE ERROR CORRECTION :          3.8 MMHO
ILM SONDE ERROR CORRECTION :          7.4 MMHO

ZERO: 05-OCT-87 07:59   PLUS: 05-OCT-87 07:59   COMP: 05-OCT-87 07:59


MCDB                CALIPER CALIBRATION SUMMARY

              MEASURED                          CALIBRATED
           SMALL    LARGE                   SMALL       LARGE         UNITS
  CALI     7.93     10.6                    8.00        12.0           IN

SMALL: 04-OCT-87 22:16  LARGE: 04-OCT-87 22:16  COMP: 04-OCT-87 22:16

   CP 30.22           FILE     1       05-OCT-87 07:59
```

```
                AFTER SURVEY TOOL CHECK SUMMARY


   PERFORMED:     05-OCT-87 09:16
   PROGRAM FILE: ISN     (VERSION     30.22    87/02/10   87/02/09)


 DITD                        TOOL  CHECK

                   ZERO                              PLUS
             BEFORE         AFTER           BEFORE        AFTER      UNITS
    ILD        0.0            -.1           500.3         502.3      MMHO
    ILM        0.0             .1           496.2         499.9      MMHO
    SFL        0.0            -.1           500.0         501.4      MMHO

 ILD SONDE ERROR CORRECTION :          3.8 MMHO
 ILM SONDE ERROR CORRECTION :          7.4 MMHO

 BEFORE SURVEY:             ZERO: 05-OCT-87 07:59   PLUS: 05-OCT-87 07:59
 AFTER SURVEY CHECK:        ZERO: 05-OCT-87 09:15   PLUS: 05-OCT-87 09:15

    CP 30.22           FILE     8       05-OCT-87 09:15
```

```
               SHOP SUMMARY


  PERFORMED:     23-SEP-87 14:08
  PROGRAM FILE: SHOP   (VERSION     30.22    87/02/09  87/02/09)


DITD                ELECTRONICS CALIBRATION SUMMARY

               TEST LOOP CALIBRATION               TOOL CHECK
             MEASURED          CALIBRATED          CALIBRATED
          ZERO      PLUS      ZERO      PLUS      ZERO      PLUS     UNITS
   ILD    -1.6      479.2     0.0       500.0     0.0       500.3    MMHO
   ILM    -7.2      489.5     0.0       500.0     0.0       496.2    MMHO
ILD  SONDE ERROR CORRECTION :         3.8 MMHO
ILM  SONDE ERROR CORRECTION :         7.4 MMHO

                        (IS:2179, IC:2230)
```

COMPANY	ARCO OIL AND GAS COMPANY			SCHL.	FR	2330.0 F
				SCHL.	TD	2336.0 F
				DRLR.	TD	2344.0 F
WELL	"COLUMBIA COUNTY" #31-34-65			Elev:	KB	912.5 F
FIELD	MIST GAS				DF	911.5 F
COUNTY	COLUMBIA	STATE	OREGON		GL	902.5 F

Schlumberger

DUAL INDUCTION - SFL

WITH LINEAR CORRELATION LOG