Oregon 34-25-66

HALLIBURTON
LOGGING SERVICES, INC.

FINAL PRINT

DUAL INDUCTION SHORT GUARD LOG

5"=100'

COMPANY ______________
WELL ______________
FIELD ______________
COUNTY __________ ST __

COMPANY ARCO OIL AND GAS COMPANY

WELL SAGER CREEK PROSPECT
OREGON NO.34-25-66

FIELD MIST

COUNTY CLATSOP

STATE OR

API NO. N/A
LOCATION : WWM
2246.66 FEET WEST AND
326.30 FEET NORTH FROM
THE SOUTHEAST CORNER OF:
SEC. 25 TWP 6N RGE 6W

OTHER SERVICES

AVL/GR

PERMANENT DATUM G.L. ELEV. 674.15
LOG MEASURED FROM K.B. 11.5FT.ABOVE PERM.DATUM
DRILLING MEASURED FROM KELLY BUSHING

ELEV.:K.B. 685.65
D.F. -----
G.L. 674.15

DATE	10/17/89			
RUN NO.	ONE			
DEPTH-DRILLER	2455			
DEPTH- LOGGER	2453			
BTM. LOG INTER.	2450			
TOP LOG INTER.	455			
CASING-DRILLER	9 5/8@455	@	@	@
CASING- LOGGER	455			
BIT SIZE	6 1/4			
TYPE FLUID IN HOLE	POLYMER	LS.ND		
DENS. : VISC	9.5 :46	:	:	:
PH : FLUID LOSS	9.0 :4.8	:	:	:
SOURCE OF SAMPLE	CIRCULATED			
RM @ MEAS. TEMP.	2.95 @75	@	@	@
RMF @ MEAS. TEMP.	4.5 @75	@	@	@
RMC @ MEAS. TEMP.	2.63 @75	@	@	@
SOURCE RMF : RMC	MEAS.:MEAS.	:	:	:
RM @ BHT	2.12 @107	@	@	@
TIME SINCE CIRC.	2.5 HOURS			
TIME ON BOTTOM	1:00 AM			
MAX. REC. TEMP.	107 @BHT	@	@	@
EQUIP. : LOCATION	2890 :WDLND	:	:	:
RECORDED BY	B.JOHNSON			
WITNESSED BY	JIM EASTES			

Fold Here

Service Ticket No.: 12310 API Serial No.: N/A PGM Version: 1.31 PC

Change in Mud Type or Additional Samples		
Date/Sample No.	10/16/89:ONE	/ / :
Depth-Driller		
Type Fluid in Hole		
Dens. : Visc.	:	:
pH. : Fluid Loss	:	:
Source of Sample		
Rm @ Meas.Temp.	@	@
Rmf @ Meas.Temp.	@	@
Rmc @ Meas.Temp.	@	@
Source: Rmf:Rmc	:	:
Rm @ BHT	2.12 @107	@
Rmf @ BHT	3.23 @107	@
Rmc @ BHT	1.89 @107	@

RESISTIVITY SCALE CHANGES

Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

Run No	Tool Type & No	Pad Type	Tool Pos.	Other
ONE	DUAL W109432	N/A	1.5"S.O.	M412
ONE	SGRD W108932	N/A	1.5"S.O.	M416

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	N/A	Run No.	N/A
Serial No.	W108594	Serial No.	W112458	Serial No.	W109740	Serial No.	W108749
Model No.	432	Model No.	305	Model No.	465	Model No.	434
Diameter	3 5/8	No.of Cent.	FOUR	Diameter	4 1/2	Diameter	3 3/8
Detector Model No.	N/A	Spacing	1 FOOT	Log Type	SDL	Log Type	DSN
Type	SCINT.			Source Type	CS 137	Source Type	AM241BE
Length	4 IN.	LSA	YES	Serial No.	129	Serial No.	66
Distance To Source	N/A	FWDA	NO	Strength	1.5 CU	Strength	19. CU

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale			Scale			Scale		
No.	From	To	Ft/Min	L	R	L	R	Matrix	L	R	Matrix	L	R	Matrix
ONE	2453	455	30	0	150	150.	50	57						
					API			US/FT						

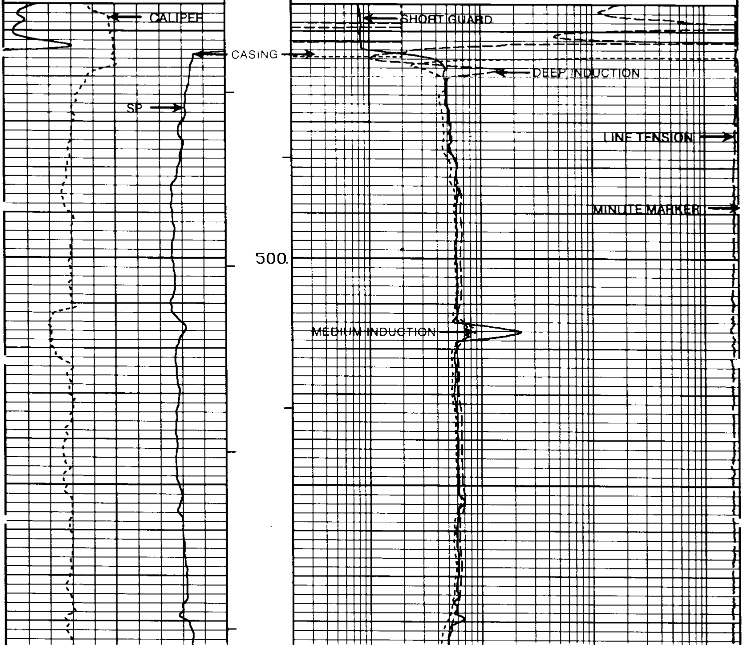
Remarks: FIRST ATTEMPT TO REACH TD FAILED, SET DOWN AT 1850. WIPER TRIP WAS MADE.
ANNULAR HOLE VOLUME CALCULATED USING 3 1/2 INCH CASING.

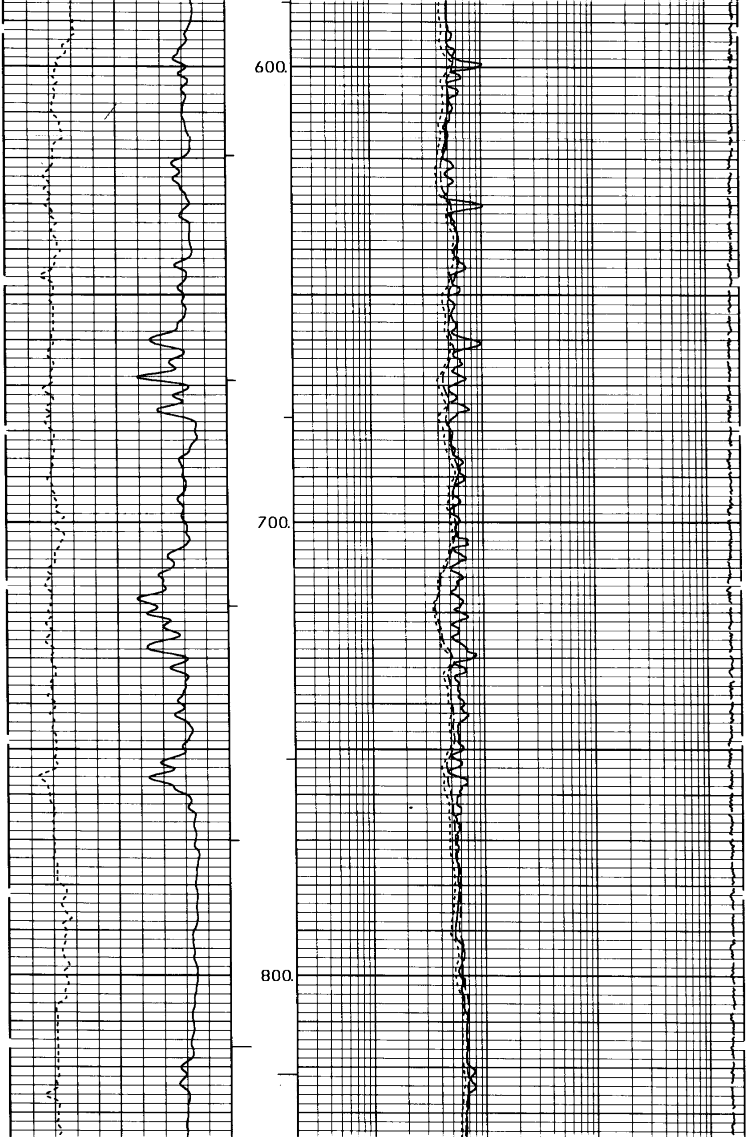
CREW ON LOCATION: JEFFREY, BRIGHT
THANK YOU FOR USING HALLIBURTON LOGGING SERVICES!!

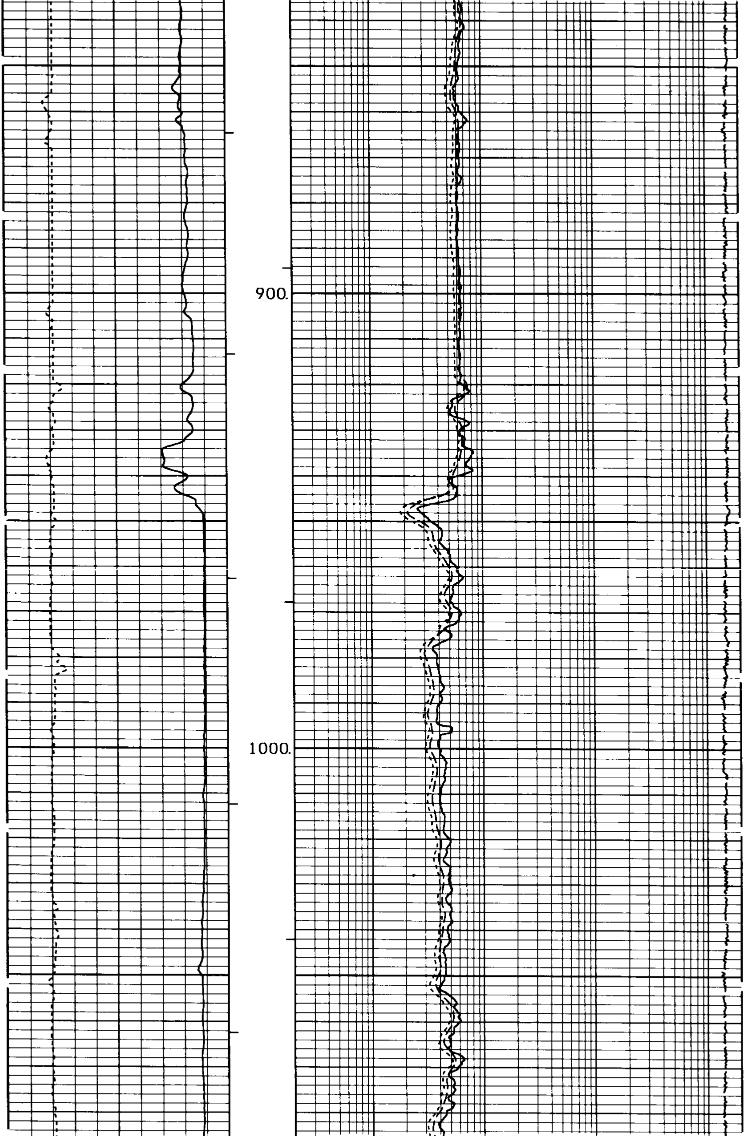
Halliburton Logging Services, Inc. does not guarantee the accuracy of any interpretation of log data, conversion of log data to physical rock parameters or recommendations which may be given by HLS personnel or which may appear on the log or in any other form. Any user of such data, interpretations, conversions or recommendations agrees that HLS is not responsible except where due to gross negligence or wilful misconduct, for any loss, damages, or expenses resulting from the use thereof.

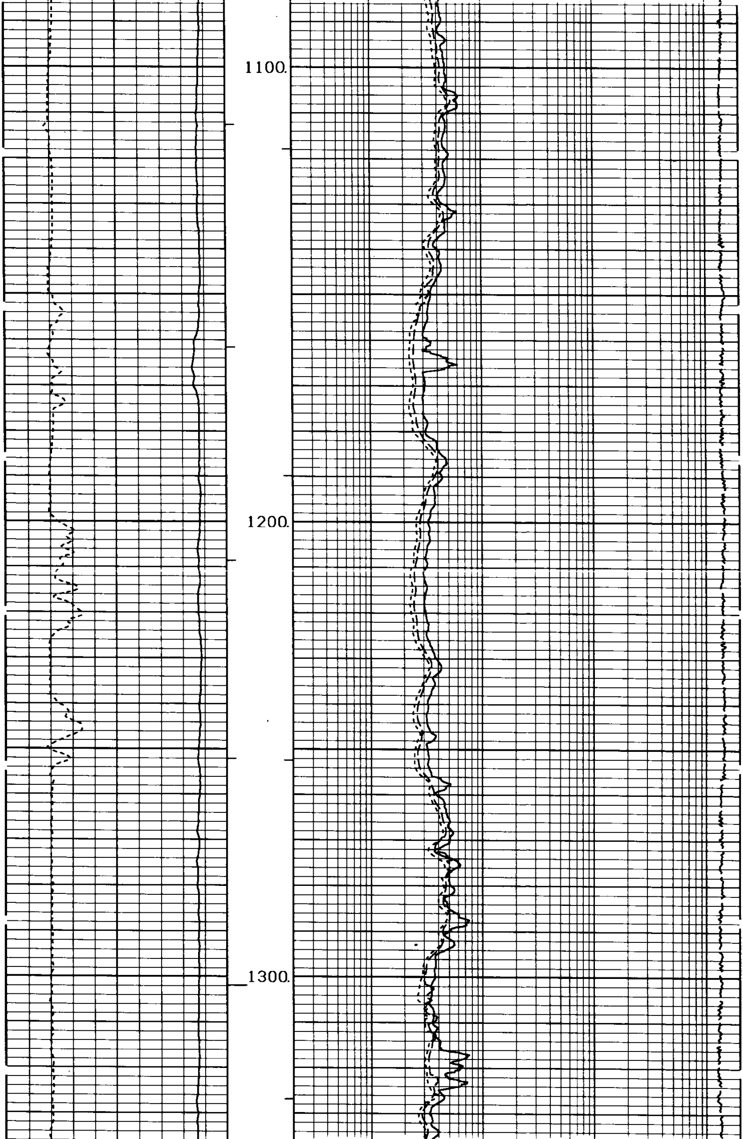
	CALIPER	
4	INCHES	14
	SP	
	-]10[+	

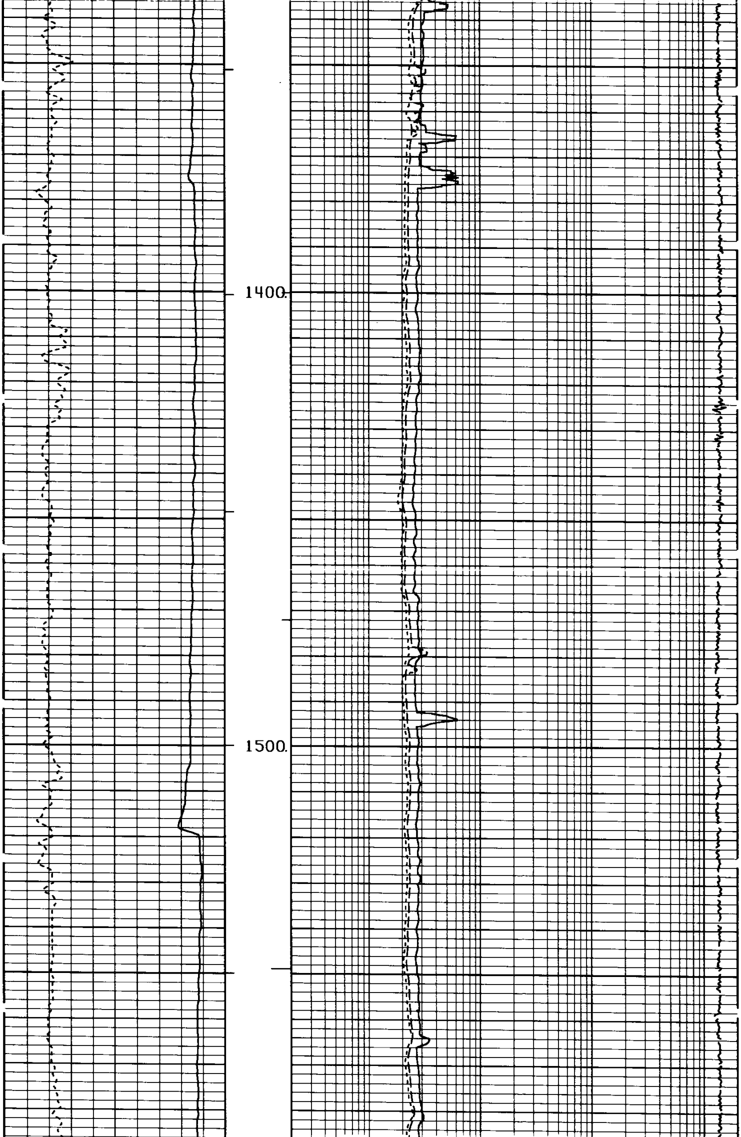
	TENSION	
6000	POUNDS	1000
	DEEP	
.2	OHM-M	2000
	MEDIUM	
.2	OHM-M	2000
	GUARD	
.2	OHM-M	2000

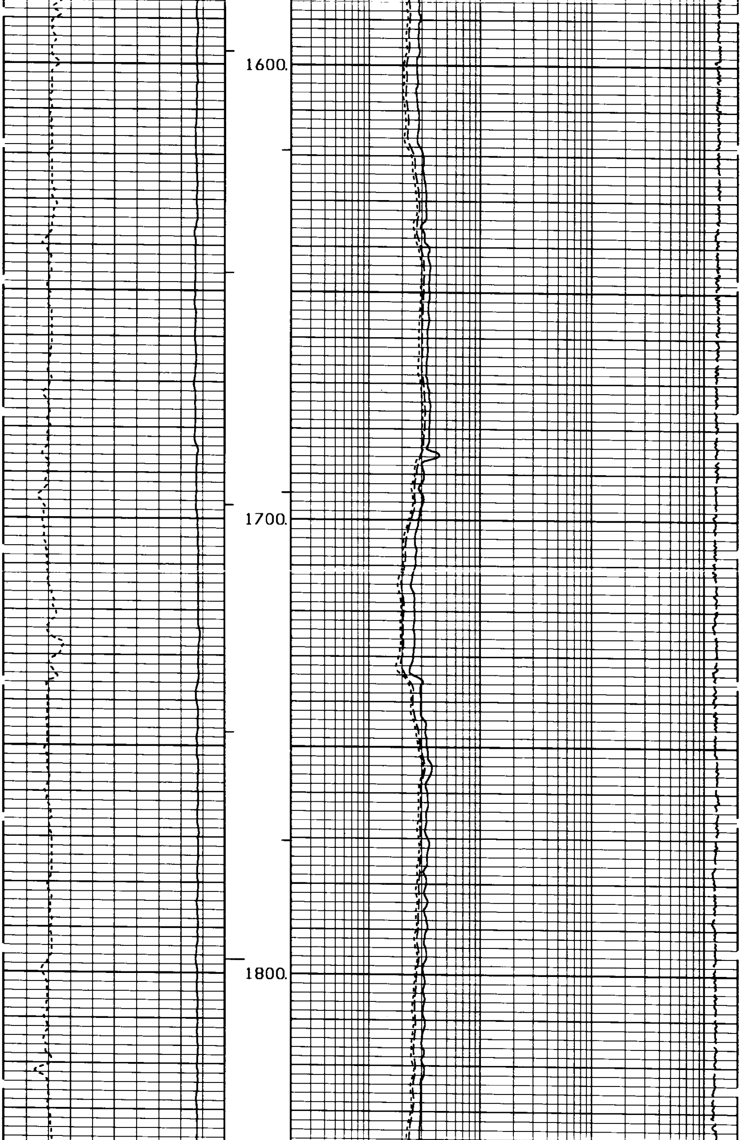


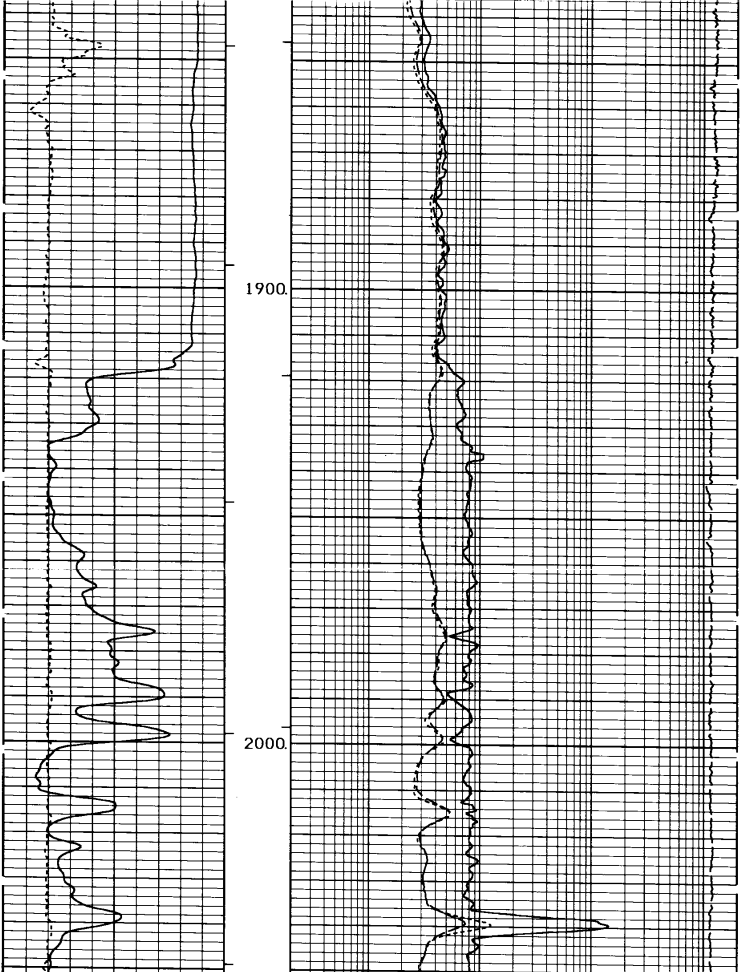


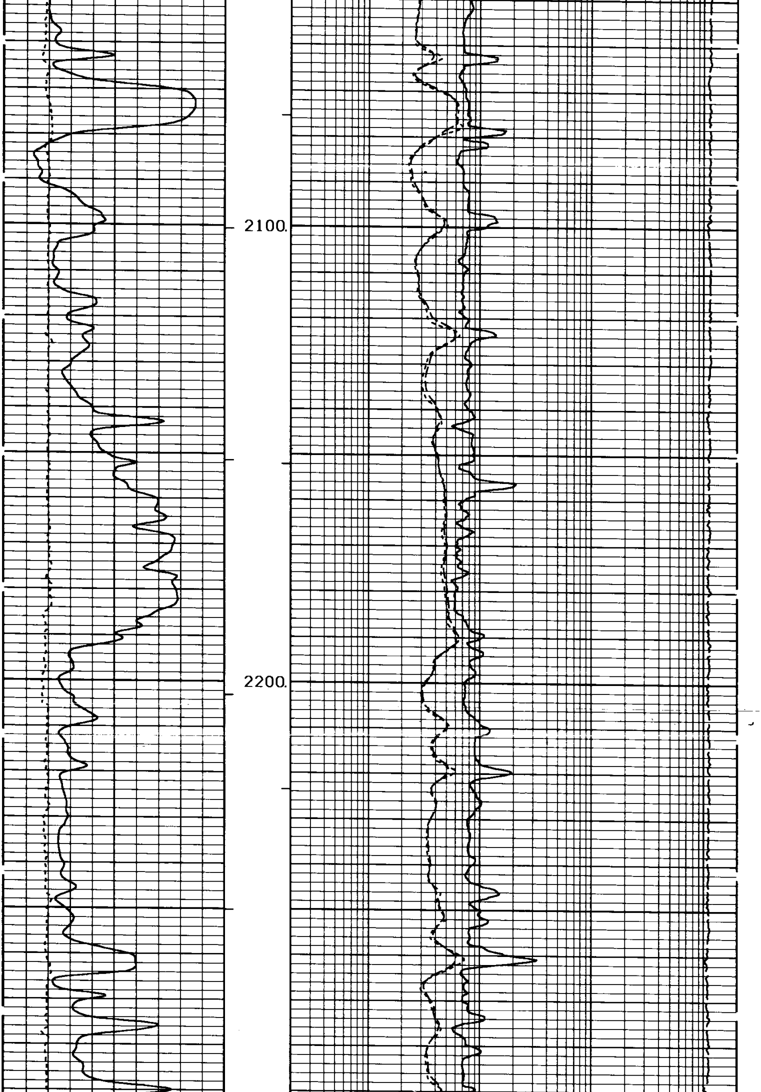


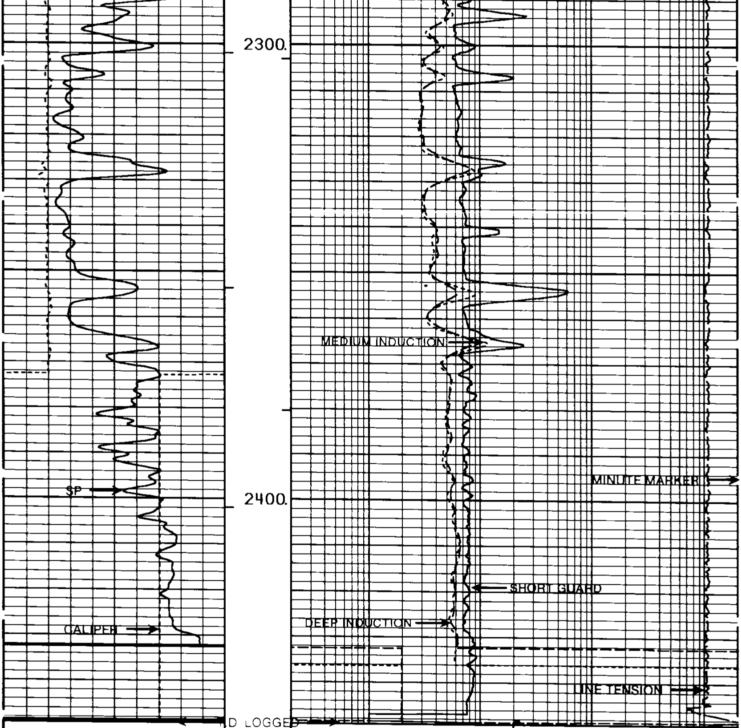












REPEAT SECTION

TENSION
6000 POUNDS 1000

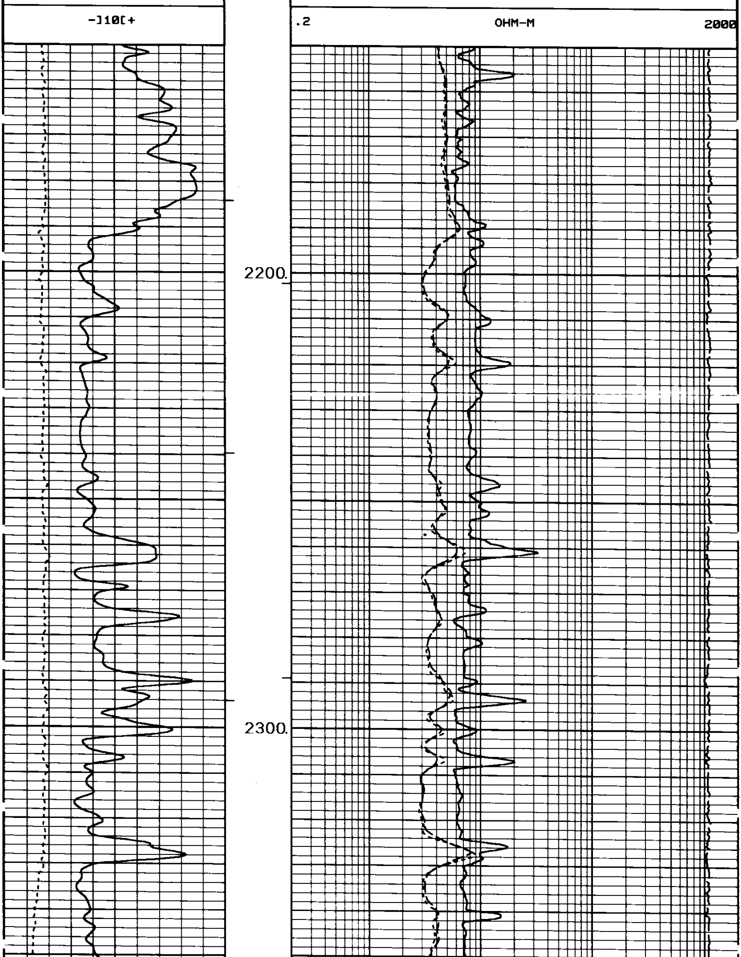
DEEP
.2 OHM-M 2000

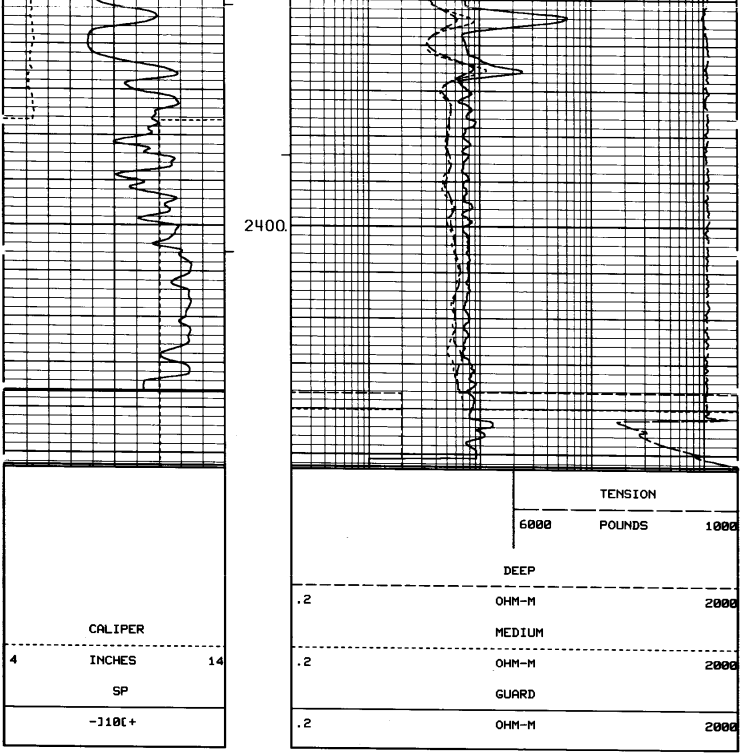
MEDIUM
.2 OHM-M 2000

GUARD

CALIPER
4 INCHES 14

SP





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                    SHORT GUARD   SHOP CALIBRATION SUMMARY
PERFORMED:  11:18:08  10/12/89    LAST SHOP CALIBRATION:   10:57:24  08/31/89
SERIAL NUMBER: 108932             PROGRAM VERSION: 1.31 PC
MODEL: #405
PERFORMED BY: JOHNSON
                         MEASURED         CALIBRATED          UNITS
                         --------         ----------          -----
EXT. CAL. POINT #1          2.007            2.000            OHM-M
EXT. CAL. POINT #2         20.018           20.000            OHM-M
EXT. CAL. POINT #3        200.207          200.000            OHM-M
INTERNAL REFERENCE         19.954           19.937            OHM-M

                    SHORT GUARD  BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  17:12:03  10/16/89    LAST SHOP CALIBRATION:   11:18:08  10/12/89

                           SHOP            FIELD              UNITS
                         --------        ---------           ------
INTERNAL REFERENCE         19.937          19.905            OHM-M
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                    SHORT GUARD  AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  02:24:39  10/17/89    LAST SHOP CALIBRATION:   11:18:08  10/12/89

                           BEFORE           AFTER            UNITS
                          --------        ---------          -----
INTERNAL REFERENCE         19.905          19.899            OHM-M


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                   DUAL INDUCTION  SHOP CALIBRATION SUMMARY
PERFORMED:  11:25:10  10/12/89    LAST SHOP CALIBRATION:   11:05:42  08/31/89
SERIAL NUMBER: 109432             PROGRAM VERSION: 1.31 PC
MODEL: #412
PERFORMED BY: JOHNSON

                            DEEP INDUCTION          MEDIUM INDUCTION
                         MEASURED   CALIBRATED    MEASURED   CALIBRATED    UNITS
                         --------------------    --------------------    -------
TOOL ZERO                    .044        .000        .125        .000    MMHOS/M
INTERNAL REFERENCE        496.260     497.213     505.173     504.112    MMHOS/M
WHEEL                     499.256     500.000     501.897     500.000    MMHOS/M
MANDREL BASE                3.683       3.922       5.771       6.411    MMHOS/M

                   DUAL INDUCTION BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  17:13:23  10/16/89    LAST SHOP CALIBRATION:   11:25:10  10/12/89

                            DEEP INDUCTION          MEDIUM INDUCTION
                            SHOP     FIELD          SHOP       FIELD       UNITS
                         --------------------    --------------------    -------
TOOL ZERO                    .000        .939        .000       -.294    MMHOS/M
INTERNAL REFERENCE        497.212     502.534     504.111     508.015    MMHOS/M
MANDREL BASE                3.922       3.922       6.411       6.411    MMHOS/M

                   DUAL INDUCTION AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  02:26:02  10/17/89    LAST SHOP CALIBRATION:   11:25:10  10/12/89

                            DEEP INDUCTION          MEDIUM INDUCTION
                          BEFORE     AFTER        BEFORE       AFTER       UNITS
                         --------------------    --------------------    -------
TOOL ZERO                    .939       1.246       -.295       -.165    MMHOS/M
INTERNAL REFERENCE        502.533     503.803     508.015     509.030    MMHOS/M
MANDREL BASE                3.922       3.922       6.411       6.411    MMHOS/M


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                        GAMMA   SHOP CALIBRATION SUMMARY
PERFORMED:  16:59:41  10/16/89    LAST SHOP CALIBRATION:   10:05:26  09/01/89
SERIAL NUMBER: 108594             PROGRAM VERSION: 1.31 PC
MODEL: #432           FIELD CALIBRATOR: #2141
PERFORMED BY: JOHNSON

                          MEASURED        CALIBRATED          UNITS
                          --------        ----------          -----
BACKGROUND                   22               21             API-CPS
BACKGROUND+CALIBRATOR       287              279             API-CPS
CALIBRATOR                  265              258             API-CPS

                        GAMMA  BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  17:08:30  10/16/89    LAST SHOP CALIBRATION:   16:59:41  10/16/89
FIELD CALIBRATOR: #2141

                            SHOP            FIELD             UNITS
                          --------        ----------          -----
BACKGROUND                   21               22             API-CPS
BACKGROUND+CALIBRATOR       279              275             API-CPS
CALIBRATOR                  258              253             API-CPS

                        GAMMA  AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  02:40:42  10/17/89    LAST SHOP CALIBRATION:   16:59:41  10/16/89

                           BEFORE            AFTER            UNITS
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                                     --------        ----------           -----
BACKGROUND                              22              24               API-CPS
BACKGROUND+CALIBRATOR                  275             278               API-CPS
CALIBRATOR                             253             255               API-CPS

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                       CALIPER   SHOP CALIBRATION SUMMARY
PERFORMED:  12:00:42  10/05/89    LAST SHOP CALIBRATION:   14:00:58  08/07/89
SERIAL NUMBER: TAN                PROGRAM VERSION: 1.31 PC
MODEL: #202
PERFORMED BY: MCDANIEL

                           MEASURED         CALIBRATED            UNITS
                           --------         ----------            -----
VALUE 1                       8.590            8.000              INCHES
VALUE 2                      17.414           16.000              INCHES

                       CALIPER  BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  17:09:53  10/16/89    LAST SHOP CALIBRATION:   12:00:42  10/05/89

                             SHOP             FIELD               UNITS
                           --------         ---------             -----
VALUE 1                       8.000            7.884              INCHES

                       CALIPER  AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  02:34:43  10/17/89    LAST SHOP CALIBRATION:   12:00:42  10/05/89

                            BEFORE            AFTER               UNITS
                           --------         ---------             -----
VALUE 1                       7.884            7.871              INCHES

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                       TENSION   SHOP CALIBRATION SUMMARY
PERFORMED:  00:25:15  10/17/89    LAST SHOP CALIBRATION:   16:51:54  10/16/89
SERIAL NUMBER: TOP                PROGRAM VERSION: 1.31 PC

                           H L S CALIBRATION SUMMARY TABLE
                           -------------------------------

  SERVICE or SIGNAL           SHOP      BEFORE     AFTER     CHANGE   TOLERANCE
-----------------------   ---------  ---------  ---------  --------  ---------
GUARD                        19.937     19.905     19.899      .005     +/-.80
DEEP INDUCTION              497.212    502.533    503.803    -1.269     +/- 20
MEDIUM INDUCTION            504.111    508.015    509.030    -1.014     +/- 20
GAMMA                       258        253        255        -1         +/- 9.0
CALIPER VALUE 1               8.000      7.884      7.871      .013     +/- 0.50
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EVENTS

```
  1 23:32:34 00000 >DATE OF LOG: MMDD                 1016
  2 23:40: 6 00000 >PLS SOFTWARE REVISION             1.31
  3 23:40: 6 00000 >CURRENT REVISION UPDATE NUMBER PC
  4  0: 0: 1 00000 >DATE OF LOG: MMDD                 1017
  5  0:26: 8 01000 >CASING SIZE O.D. (INCHES)          5.500+0
  6  0:26: 9 01000 >BIT SIZE? (INCHES)                 7.875+0
  7  0:26:11 01000 >DT-MATRIX(40=DOL<DT<70=SHALY)      5.700+1
  8  0:26:11 01000 >DT-SHALE (100=MIN<DT<160=MAX)      1.000+2
  9  0:26:11 01000 >FOR FORMATION FACTOR(.5<A<2.5)     1.000+0
 10  0:26:12 01000 >FOR FORMATION FACTOR(1.2<M<2.5)    2.000+0
 11  0:26:18 01000 >CASING SIZE O.D. (INCHES)          3.500+0
 12  0:26:26 01000 >BIT SIZE? (INCHES)                 6.250+0
 13  0:26:31 01000 >FOR FORMATION FACTOR(.5<A<2.5)     8.100-1
 14  0:26:33 01002 >>LOG PARAMETERS UPDATED HERE
 15  0:48:50 02453 >LOGGING SECTION NO.                     2
 16  0:59:15 02149 >"HALTING" END OF SECTION
 17  1: 3:46 02449 >LOGGING SECTION NO.                     3
 18  1:14:31 02125 >"HALTING" END OF SECTION
 19  1:14:31 02125 >"HALTING" END OF SECTION
 20  1:16:37 02300 >LOGGING SECTION NO.                     4
 21  2:11: 3 00576 >"HALTING" END OF SECTION
 22  2:13: 2 00720 >LOGGING SECTION NO.                     5
 23  2:21:15 00443 >"HALTING" END OF SECTION
 24  2:21:15 00443 >"HALTING" END OF SECTION
```