HALLIBURTON
LOGGING SERVICES, INC.
FINAL PRINT

DUAL INDUCTION ACOUSTIC VELOCITY LOG

5"=100'

COMPANY ______________
WELL ______________
FIELD ______________
COUNTY __________ ST __

COMPANY D Y OIL INC.

WELL LAVA CREEK PROSPECT NO.23-22-64

FIELD MIST

COUNTY COLUMBIA

STATE OR

API NO. N/A
LOCATION :
2365.54 FEET NORTH AND
1877.39 FEET EAST FROM
THE SOUTHWEST CORNER OF:
SEC. 22 TWP 6N RGE 4W

OTHER SERVICES

NONE

PERMANENT DATUM G.L. ELEV. 1311.4
LOG MEASURED FROM K.B. 13.2FT.ABOVE PERM.DATUM
DRILLING MEASURED FROM KELLY BUSHING

ELEV.:K.B. 1324.6
D.F. -----
G.L. 1311.4

DATE	10/13/89	10/14/89		
RUN NO.	ONE	TWO		
DEPTH-DRILLER	2155	2683		
DEPTH- LOGGER	2155	2679		
BTM. LOG INTER.	2152	2676		
TOP LOG INTER.	520	2050		
CASING-DRILLER	8 5/8@520	8 5/8@520	@	@
CASING- LOGGER	520	520		
BIT SIZE	7 7/8	7 7/8		
TYPE FLUID IN HOLE	LIGNO-	SULFONATE		
DENS. : VISC	9.4 :40	9.4 :45	:	:
PH : FLUID LOSS	9.0 :9.0	9.0 :9.0	:	:
SOURCE OF SAMPLE	CIRCULATED	CIRCULATED		
RM @ MEAS. TEMP.	4.15 @75	4.25 @75	@	@
RMF @ MEAS. TEMP.	5.4 @75	4.75 @75	@	@
RMC @ MEAS. TEMP.	2.95 @75	3.8 @75	@	@
SOURCE RMF : RMC	MEAS.:MEAS.	MEAS.:MEAS.	:	:
RM @ BHT	4.15 @94	3.38 @@ 96	@	@
TIME SINCE CIRC.	3 HOURS	4 HOURS		
TIME ON BOTTOM	4:30 PM	11:15 AM		
MAX. REC. TEMP.	94 @BHT	96 @BHT	@	@
EQUIP. : LOCATION	2890 :WDLND	2890 :WDLND	:	:
RECORDED BY	B.JOHNSON	JOHNSON		
WITNESSED BY	B.PORTWOOD	B.PORTWOOD		

Fold Here

Service Ticket No.: 12309 API Serial No.: N/A PGM Version: 1.31 PC

Change in Mud Type or Additional Samples		
Date/Sample No.	10/13/89:ONE	10/14/89:TWO
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	3.37 @94	3.38 @96
Rmf @ BHT	4.38 @94	3.78 @96
Rmc @ BHT	2.39 @94	3.02 @96

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
TWO	DUAL W109437	N/A	1.5"S.O.	M412
TWO	SGRD W108946	N/A	1.5"S.O.	M416

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	TWO	Run No.	TWO	Run No.	N/A	Run No.	N/A
Serial No.	W108581	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	2155	520	30	0	150	150.	50	57						
TWO	2679	2050	30	0	150	150	50	57						
					API			US/FT						

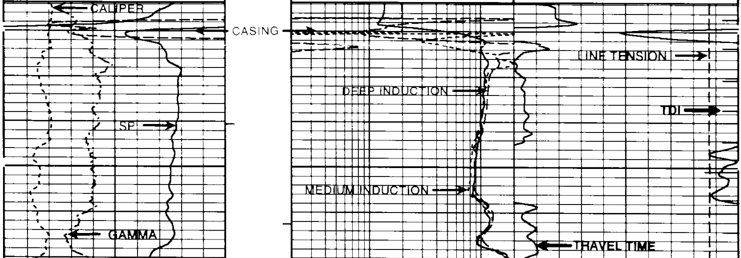
Remarks: ANNULAR HOLE VOLUME CALCULATED USING 5 1/2 INCH CASING.
REPEAT SECTION RUN OVER ZONE OF INTEREST AND EXTENDED TO OVERLAP RUN ONE.

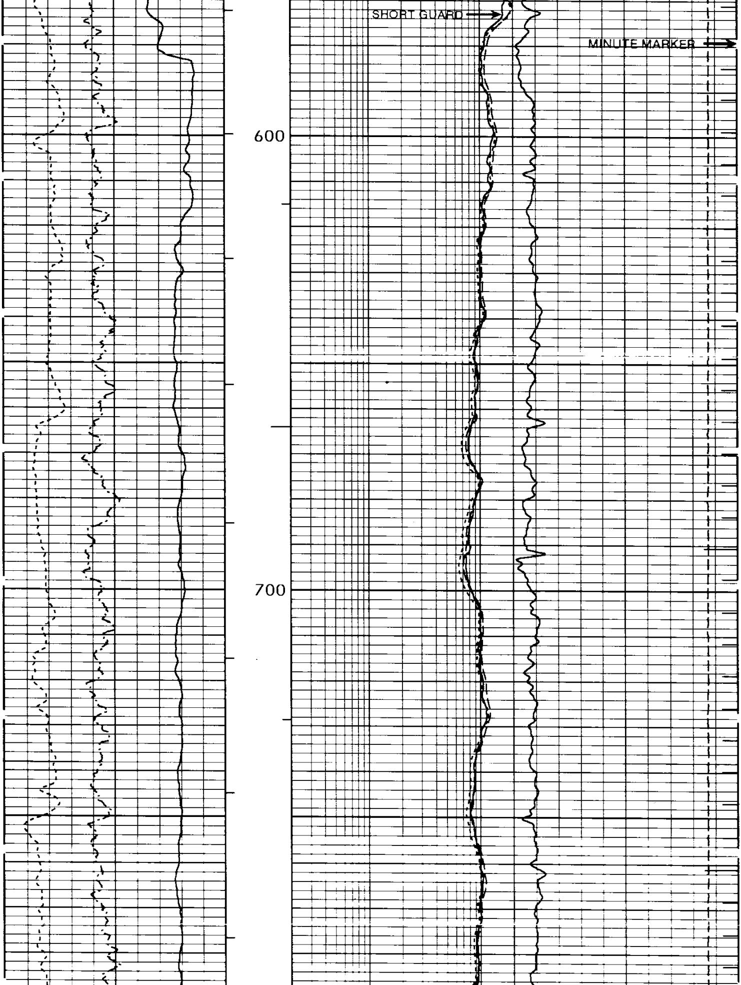
CREW ON LOCATION: JEFFREY, BRIGHT
THANK YOU FOR USING HALLIBURTON LOGGING SERVICES!!

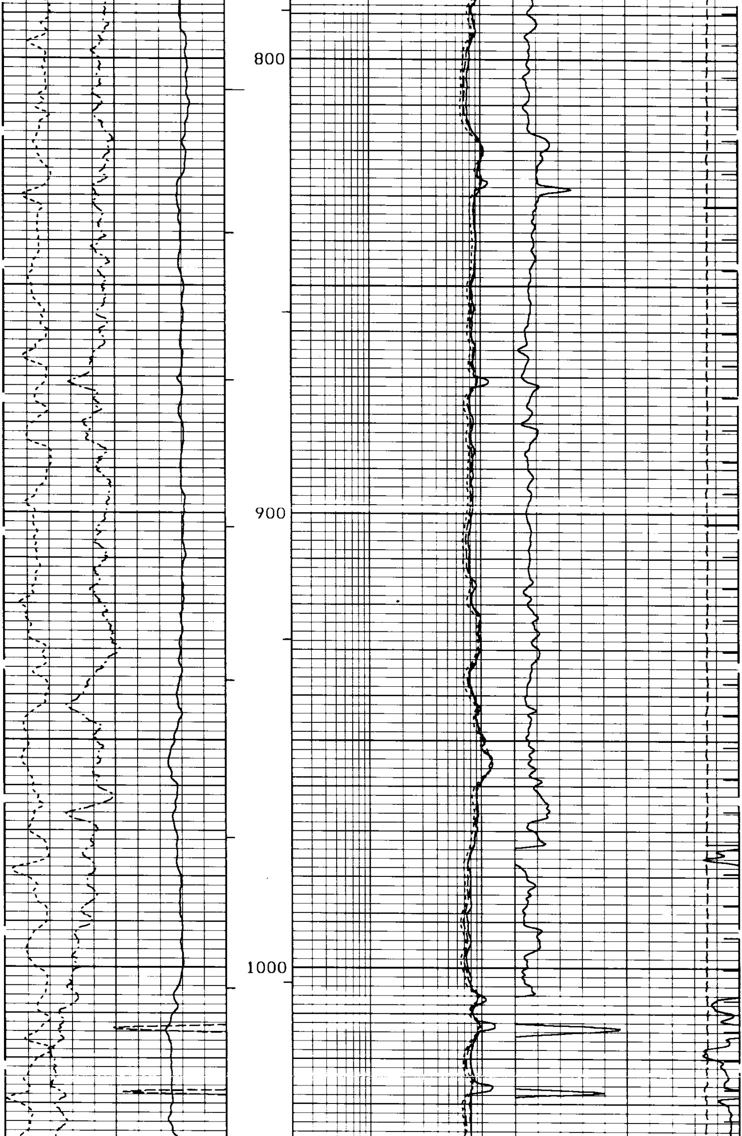
Halliburton Logging Services, Inc. does not guarantee the accuracy of any interpretation of log data, conversion of log data to physical rock parameters or recommendations which may be given by HLS personnel or which may appear on the log or in any other form. Any user of such data, interpretations, 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.

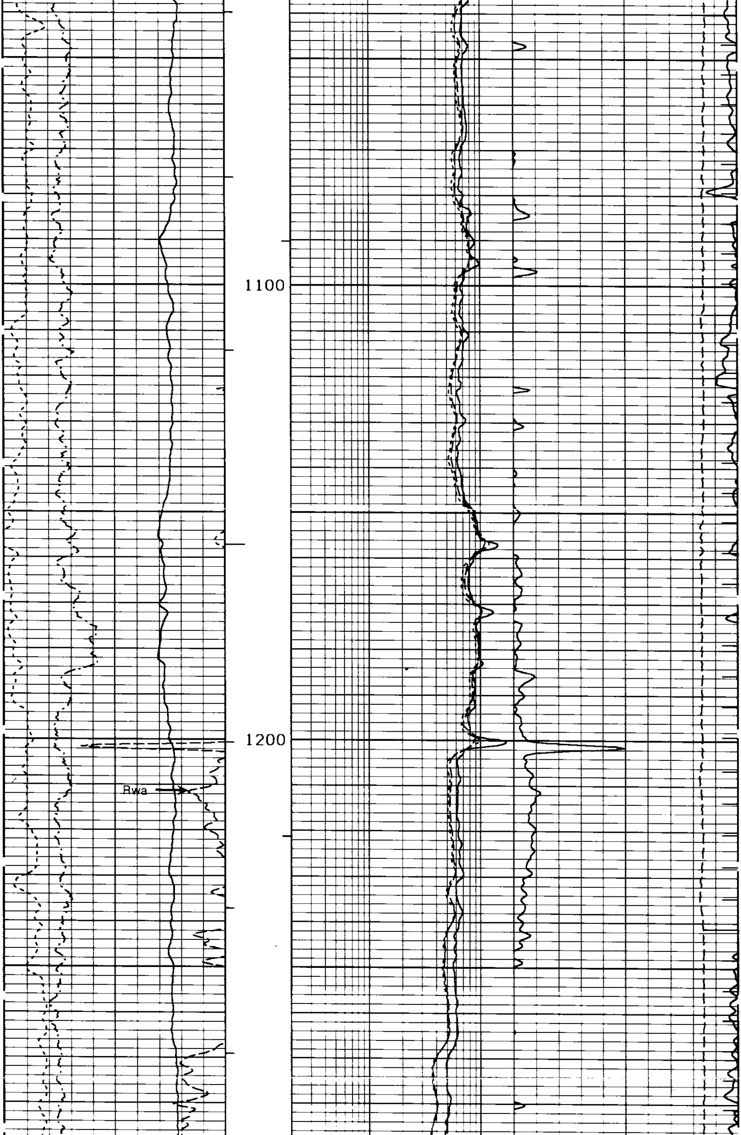
	GAMMA	
0	API	150
	CALIPER	
6	INCHES	16
	SP	
	-]10[+	
	RWA	
0	OHM-M	3

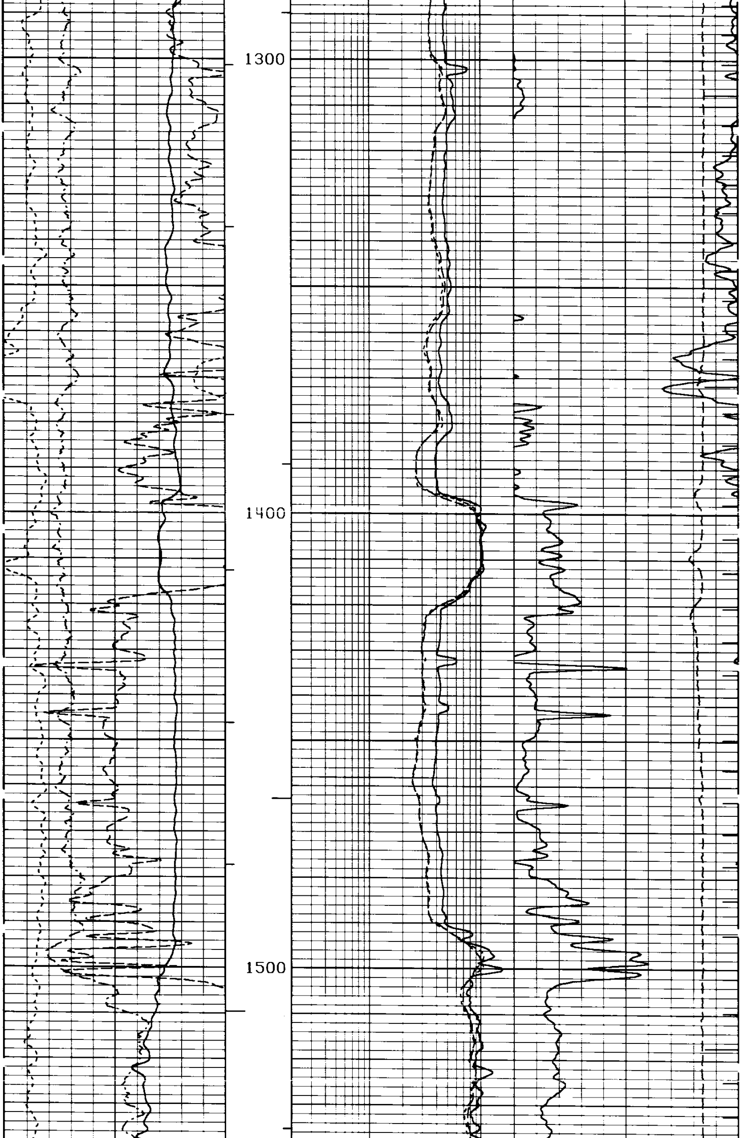
	DEEP			TENSION	
.2	OHM-M	20	10000	POUNDS	0
	MEDIUM				
.2	OHM-M	20	100	<TDI<	0
	GUARD			DELTA-T	
.2	OHM-M	20	150	USEC	50

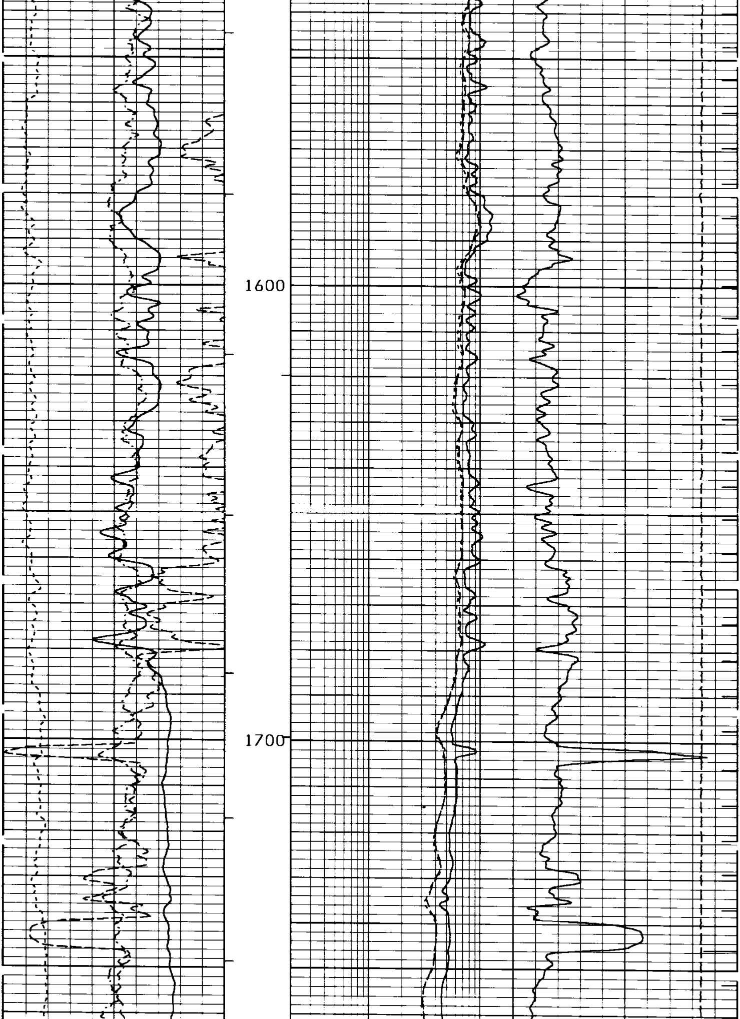


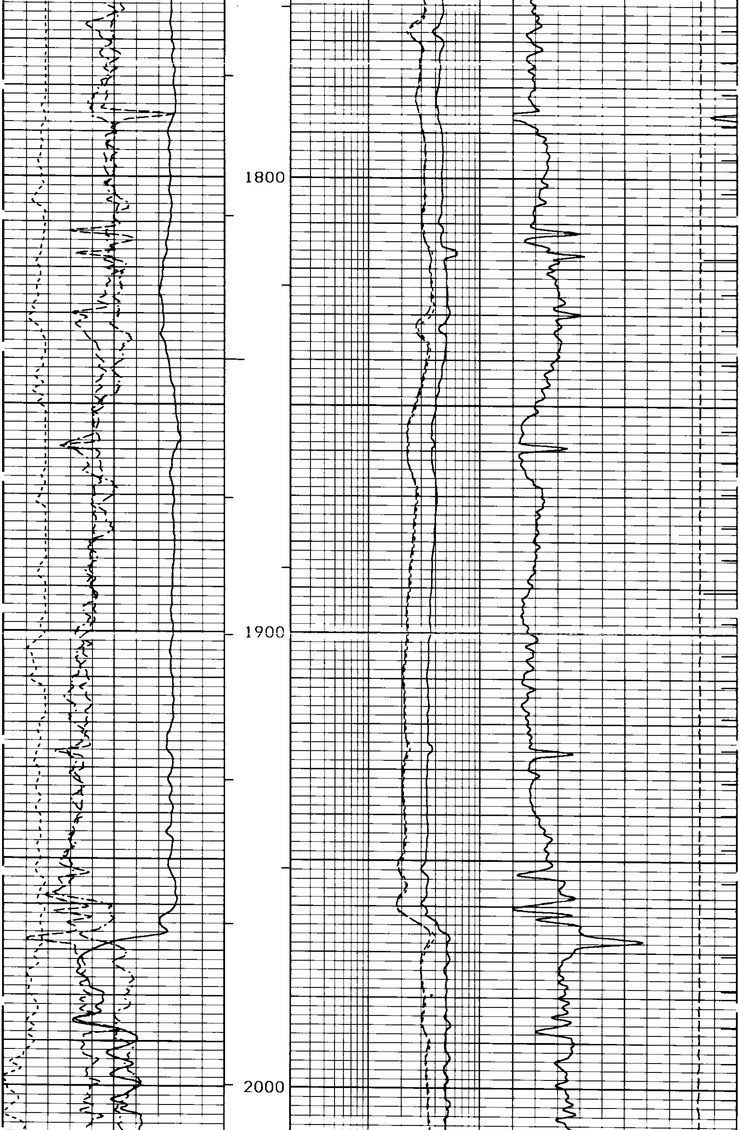


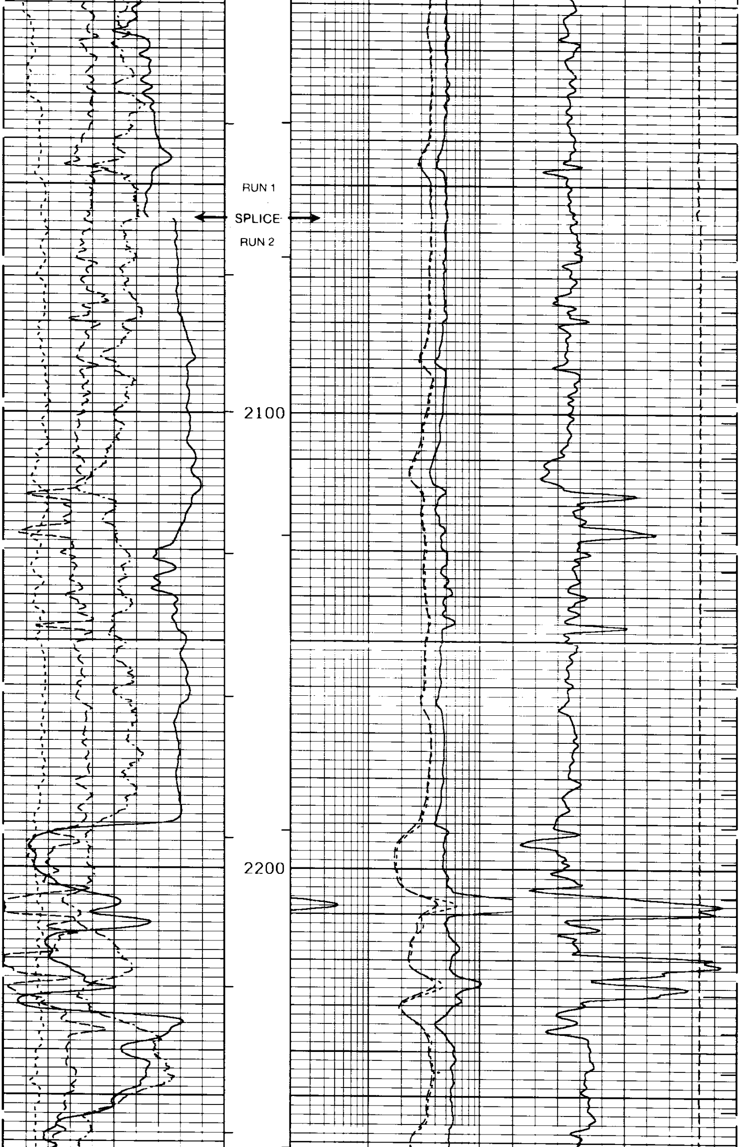


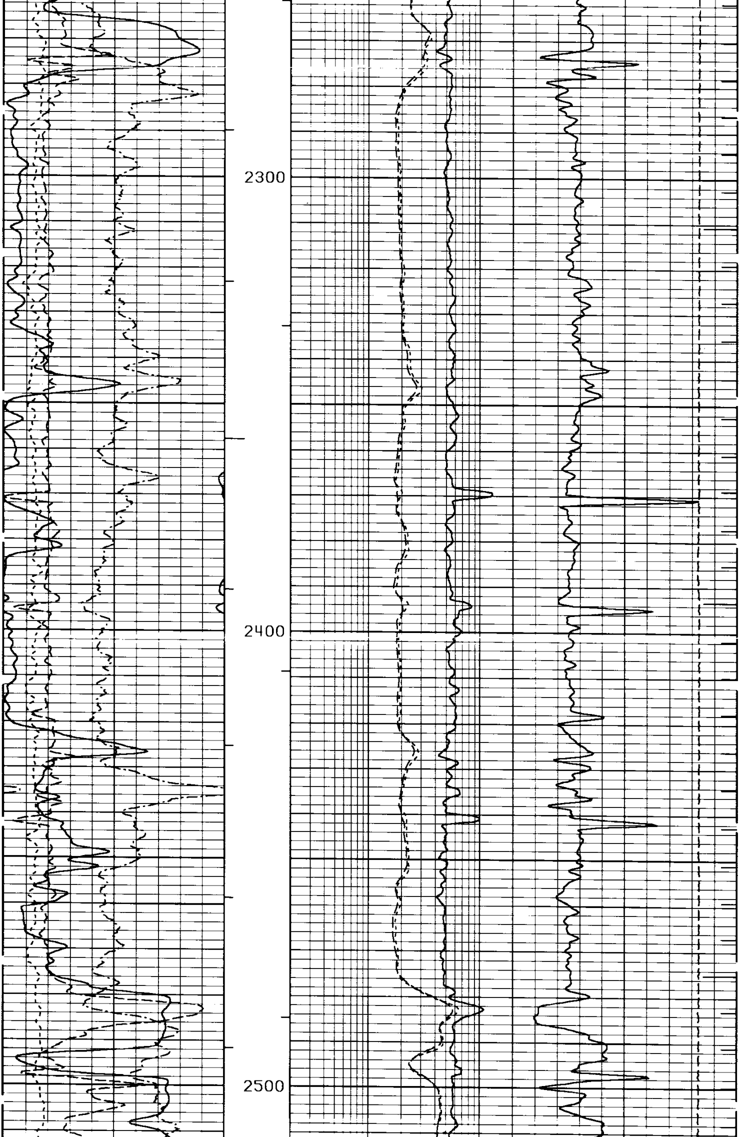


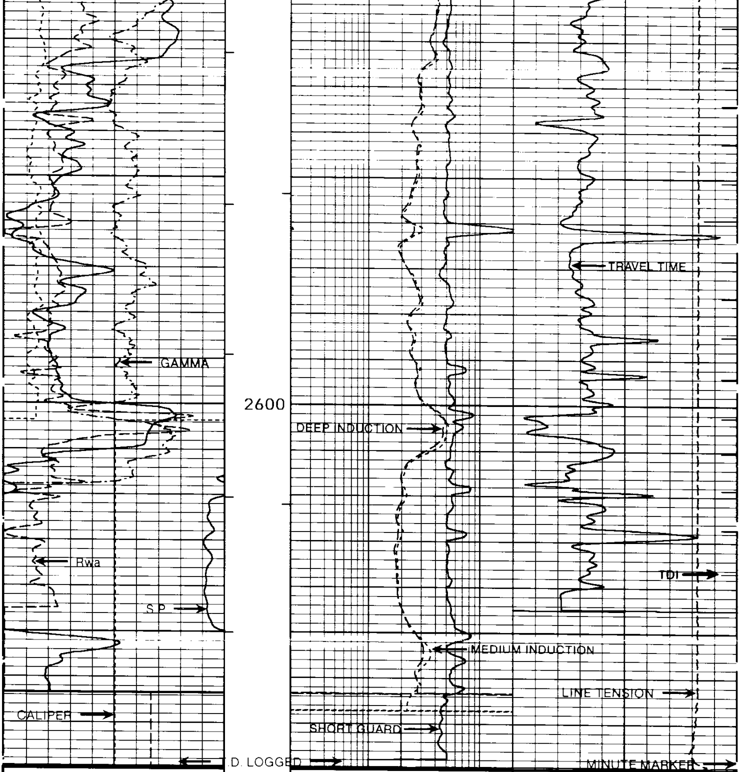




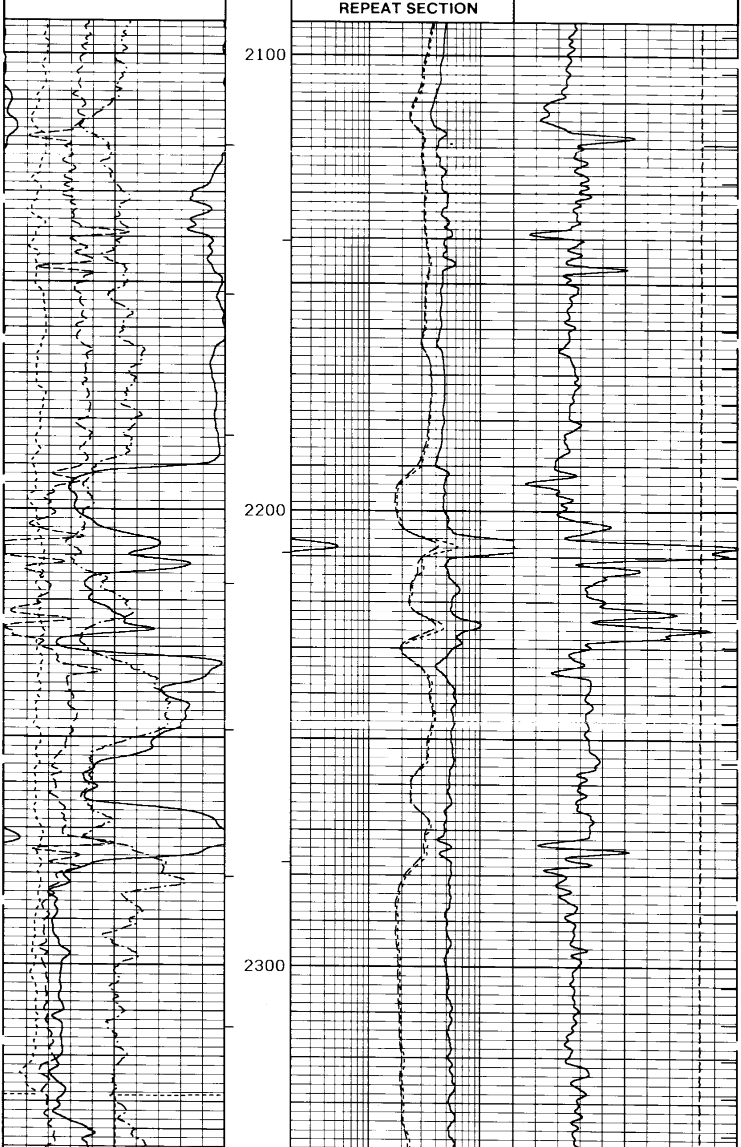


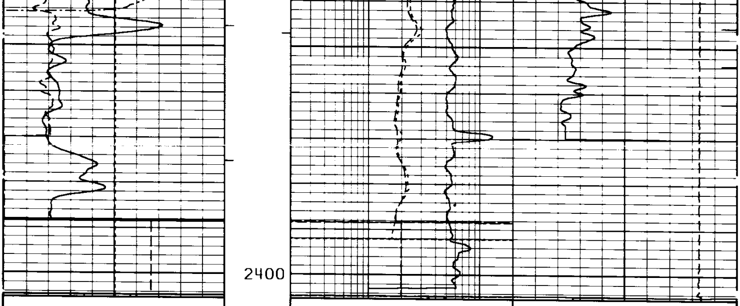






GAMMA		
0 API 150		
CALIPER	DEEP	TENSION
6 INCHES 16	.2 OHM-M 20	10000 POUNDS 0
SP	MEDIUM	
-]10[+	.2 OHM-M 20	100 <TDI< 0
RWA	GUARD	DELTA-T
0 OHM-M 3	.2 OHM-M 20	150 USEC 50





	GAMMA	
0	API	150
	CALIPER	
6	INCHES	16
	SP	
	-]10[+	
	RWA	
0	OHM-M	3

	DEEP			TENSION	
.2	OHM-M	20	10000	POUNDS	0
	MEDIUM				
.2	OHM-M	20	100	<TDI<	0
	GUARD			DELTA-T	
.2	OHM-M	20	150	USEC	50

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                    SHORT GUARD   SHOP CALIBRATION SUMMARY
PERFORMED:  10:38:01  10/12/89     LAST SHOP CALIBRATION:   10:32:27  09/29/89
SERIAL NUMBER: 108946              PROGRAM VERSION: 1.31 PC
MODEL: #405
PERFORMED BY: JOHNSON
                         MEASURED          CALIBRATED          UNITS
                         --------          ----------          -----
EXT. CAL. POINT #1         2.008              2.000            OHM-M
EXT. CAL. POINT #2        20.143             20.000            OHM-M
EXT. CAL. POINT #3       201.664            200.000            OHM-M
INTERNAL REFERENCE        19.810             19.669            OHM-M

                    SHORT GUARD  BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  15:52:22  10/13/89    LAST SHOP CALIBRATION:   10:38:01  10/12/89

                           SHOP             FIELD             UNITS
                         --------         ---------           ------
INTERNAL REFERENCE        19.669           19.712             OHM-M


                    SHORT GUARD  AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  17:32:25  10/13/89    LAST SHOP CALIBRATION:   10:38:01  10/12/89

                         BEFORE            AFTER              UNITS
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INTERNAL REFERENCE                  19.712            19.694             OHM-M


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                     DUAL INDUCTION  SHOP CALIBRATION SUMMARY
PERFORMED:  10:50:24  10/12/89    LAST SHOP CALIBRATION:   10:18:34  09/29/89
SERIAL NUMBER: 109437             PROGRAM VERSION: 1.31 PC
MODEL: #412
PERFORMED BY: JOHNSON

                               DEEP INDUCTION        MEDIUM INDUCTION
                            MEASURED  CALIBRATED   MEASURED  CALIBRATED    UNITS
                            --------------------   --------------------   -------
TOOL ZERO                     -.031       .000       -.004       .000     MMHOS/M
INTERNAL REFERENCE           497.250    498.634     499.308    500.831    MMHOS/M
WHEEL                        497.896    500.000     499.515    500.000    MMHOS/M
MANDREL BASE                   2.224      1.757       1.083      1.888    MMHOS/M

                     DUAL INDUCTION BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  15:55:30  10/13/89    LAST SHOP CALIBRATION:   10:50:24  10/12/89

                               DEEP INDUCTION        MEDIUM INDUCTION
                              SHOP     FIELD        SHOP       FIELD       UNITS
                            --------------------   --------------------   -------
TOOL ZERO                      .000       .161        .000       .202     MMHOS/M
INTERNAL REFERENCE           498.633    499.751     500.830    504.753    MMHOS/M
MANDREL BASE                   1.757      1.757       1.888      1.888    MMHOS/M

                     DUAL INDUCTION AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  17:30:45  10/13/89    LAST SHOP CALIBRATION:   10:50:24  10/12/89

                               DEEP INDUCTION        MEDIUM INDUCTION
                             BEFORE    AFTER        BEFORE     AFTER       UNITS
                            --------------------   --------------------   -------
TOOL ZERO                      .161       .145        .202       .177     MMHOS/M
INTERNAL REFERENCE           499.750    501.030     504.752    505.294    MMHOS/M
MANDREL BASE                   1.757      1.757       1.888      1.888    MMHOS/M


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                        GAMMA  SHOP CALIBRATION SUMMARY
PERFORMED:  14:46:48  10/12/89    LAST SHOP CALIBRATION:   14:40:51  10/12/89
SERIAL NUMBER: 108581             PROGRAM VERSION: 1.31 PC
MODEL: #432         FIELD CALIBRATOR: #2141
PERFORMED BY: JOHNSON

                              MEASURED          CALIBRATED          UNITS
                              --------          ----------          -----
BACKGROUND                       18                 18             API-CPS
BACKGROUND+CALIBRATOR           271                276             API-CPS
CALIBRATOR                      253                258             API-CPS

                        GAMMA  BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:31:56  10/13/89    LAST SHOP CALIBRATION:   14:46:48  10/12/89
FIELD CALIBRATOR: #2141

                                SHOP              FIELD             UNITS
                              --------          ----------          -----
BACKGROUND                       18                 31             API-CPS
BACKGROUND+CALIBRATOR           276                291             API-CPS
CALIBRATOR                      258                260             API-CPS

                        GAMMA  AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  17:53:43  10/13/89    LAST SHOP CALIBRATION:   14:46:48  10/12/89

                               BEFORE             AFTER             UNITS
                              --------          ----------          -----
BACKGROUND                       31                 21             API-CPS
BACKGROUND+CALIBRATOR           291                281             API-CPS
CALIBRATOR                      260                261             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:  14:24:59  10/13/89     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:  17:33:27  10/13/89     LAST SHOP CALIBRATION:   12:00:42  10/05/89

                              BEFORE             AFTER               UNITS
                             --------          ---------             -----
VALUE 1                         7.884             7.907              INCHES


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                         TENSION   SHOP CALIBRATION SUMMARY
PERFORMED:  15:49:35  10/13/89     LAST SHOP CALIBRATION:   01:33:37  10/10/89
SERIAL NUMBER: TOP                 PROGRAM VERSION: 1.31 PC


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

   SERVICE or SIGNAL          SHOP        BEFORE      AFTER      CHANGE    TOLERANCE
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GUARD                         19.669     19.712     19.694       .017    +/-.80
DEEP INDUCTION               498.633    499.750    501.030     -1.280    +/- 20
MEDIUM INDUCTION             500.830    504.752    505.294      -.542    +/- 20
GAMMA                        258        260        261          0        +/- 9.0
CALIPER VALUE 1                8.000      7.884      7.907      -.022    +/- 0.50
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EVENTS

```
  1 13:56:15 00000 >DATE OF LOG: MMDD                1013
  2 13:59:11 00000 >PLS SOFTWARE REVISION            1.31
  3 13:59:11 00000 >CURRENT REVISION UPDATE NUMBER PC
  4 14:45:47 01209 >CASING SIZE O.D. (INCHES)         5.500+0
  5 14:45:48 01209 >BIT SIZE? (INCHES)                7.875+0
  6 14:45:50 01209 >DT-MATRIX(40=DOL<DT<70=SHALY)     5.700+1
  7 14:45:50 01209 >DT-SHALE (100=MIN<DT<160=MAX)     1.000+2
  8 14:45:50 01209 >FOR FORMATION FACTOR(.5<A<2.5)    1.000+0
  9 14:45:51 01209 >FOR FORMATION FACTOR(1.2<M<2.5)  2.000+0
 10 14:46: 8 01209 >FOR FORMATION FACTOR(.5<A<2.5)    8.100-1
 11 14:46:36 01209 >>LOG PARAMETERS UPDATED HERE
 12 16:21:11 02160 >LOGGING SECTION NO.                  2
 13 16:28:40 01939 >"HALTING" END OF SECTION
 14 16:28:41 01939 >"HALTING" END OF SECTION
 15 16:32:11 02158 >LOGGING SECTION NO.                  3
 16 17:28:43 00513 >"HALTING" END OF SECTION
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