HALLIBURTON

DUAL INDUCTION COMPENSATED SONIC

5" = 100'

COMPANY ENERFIN RESOURCES N
WELL CC #32-27-65
FIELD MIST
COUNTY COLUMBIA STATE OR

COMPANY ENERFIN RESOURCES NORTHWEST
WELL CC #32-27-65
FIELD MIST
COUNTY COLUMBIA STATE OR
API NO 36-009-00322
LOCATION
2309.89 FEET WEST AND
1881.70 FEET SOUTH FROM
THE NORTHEAST CORNER OF:

OTHER SERVICES
NONE

SECT 27 TWP 6N RGE 5W

PERMANENT DATUM G.L. ELEV 739.0
LOG MEASURED FROM K.B. 10.0 FT ABOVE PERM DATUM
DRILLING MEASURED FROM KELLY BUSHING

ELEV.: K.B. 749.0
D.F.
G.L. 739.0

DATE	09/19/96			
RUN NO.	ONE			
DEPTH-DRILLER	2084			
DEPTH-LOGGER	2086			
BTM. LOG INTER	2084			
TOP LOG INTER	CASING			
CASING DRILLER	7.000@ 495	@	@	@
CASING-LOGGER	495			
BIT SIZE	6.250			
TYPE FLUID IN HOLE	DRIS./ACRY.			
DENS. : VISC.	9.2 : 40	:	:	:
PH : FLUID LOSS	8.5 : 6.0	:	:	:
SOURCE OF SAMPLE	CIRCULATED			
RM @ MEAS. TEMP.	2.6 @ 67	@	@	@
RMF @ MEAS. TEMP.	2.2 @ 67	@	@	@
RMC @ MEAS. TEMP.	2.8 @ 67	@	@	@
SOURCE RMF:RMC	CIRC.:CIRC.	:	:	:
RM @BHT	1.9 @ 92	@	@	@
TIME SINCE CIRC.	0945 09/19			
TIME ON BOTTOM	1324 09/19			
MAX. REC TEMP.	92 @ BHT	@	@	@
EQUIP.: LOCATION	7626 :WDLND	:	:	:
RECORDED BY	M.SCHWARTZ			
WITNESSED BY	D.HUGGINS	R.LUCAS		

FOLD HERE

SERVICE TICKET NO.: 853999 API SERIAL NO.: 36-009-00322 PGM VERSION: 2.80

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLES

DATE:SAMPLE NO.	09/19/96:ONE	/ :
DEPTH-DRILLER		
TYPE FLUID IN HOLE	SAME ABOVE	
DENS. : VISC	:	:
PH : FLUID LOSS	:	:
SOURCE OF SAMPLE		
RM @ MEAS TEMP	@	@
RMF @ MEAS TEMP	@	@
RMC @ MEAS TEMP	@	@
SOURCE: RMF:RMC	CALC.:CALC.	:
RM @ BHT	1.9 @ 92	@
RMF @ BHT	1.6 @ 92	@
RMC @ BHT	2.1 @ 92	@

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	DILT #109432	N.A.	1.5"SO	
ONE	DSGT #108932	N.A.	1.5"SO	

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE	RUN NO.		RUN NO.	
SERIAL NO.	108581	SERIAL NO.	262	SERIAL NO.		SERIAL NO.	
MODEL NO.	NGRT	MODEL NO.	BCS	MODEL NO.		MODEL NO.	
DIAMETER	3.625	NO.OF CENT.	THREE	DIAMETER.		DIAMETER	
DETECTOR MODEL NO.	N.A.	SPACING	3 FEET	LOG TYPE		LOG TYPE	
TYPE	SCINT.		5 FEET	SOURCE TYPE		SOURCE TYPE	
LENGTH	4.000	LSA [Y/N]	NO	SERIAL NO.		SERIAL NO.	
DISTANCE TO SOURCE	N.A.	FWDA [Y,N]	NO	STRENGTH		STRENGTH	

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	2086	495	20	0	150	150	50	57						
				GAPI	GAPI	USFT	USFT	US/FT						

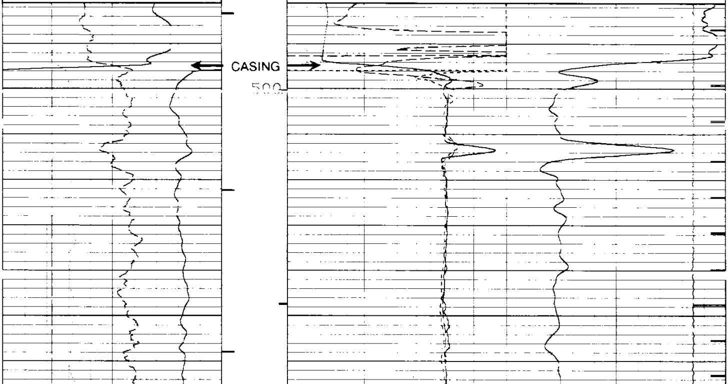
REMARKS: ANNULAR HOLE VOLUME CALCULATED USING 3.5" CASING.

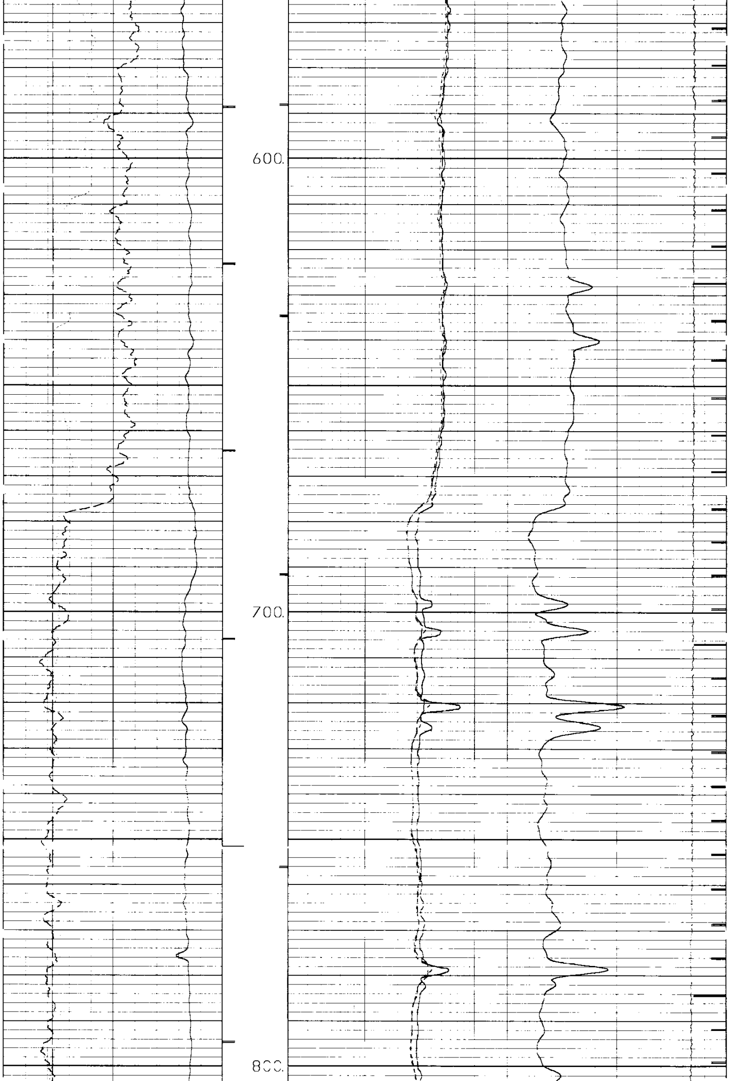
CREW ON LOCATION: M.BOLLINGER, D.BRIGHT RIG: TAYLOR #7

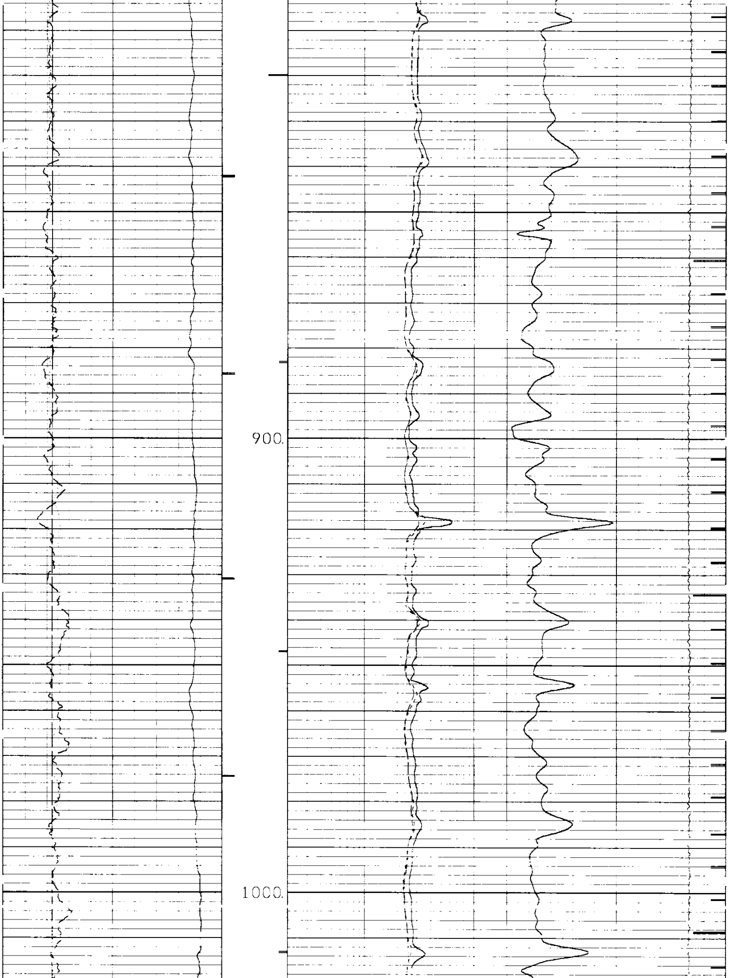
THANK YOU FOR USING HALLIBURTON.

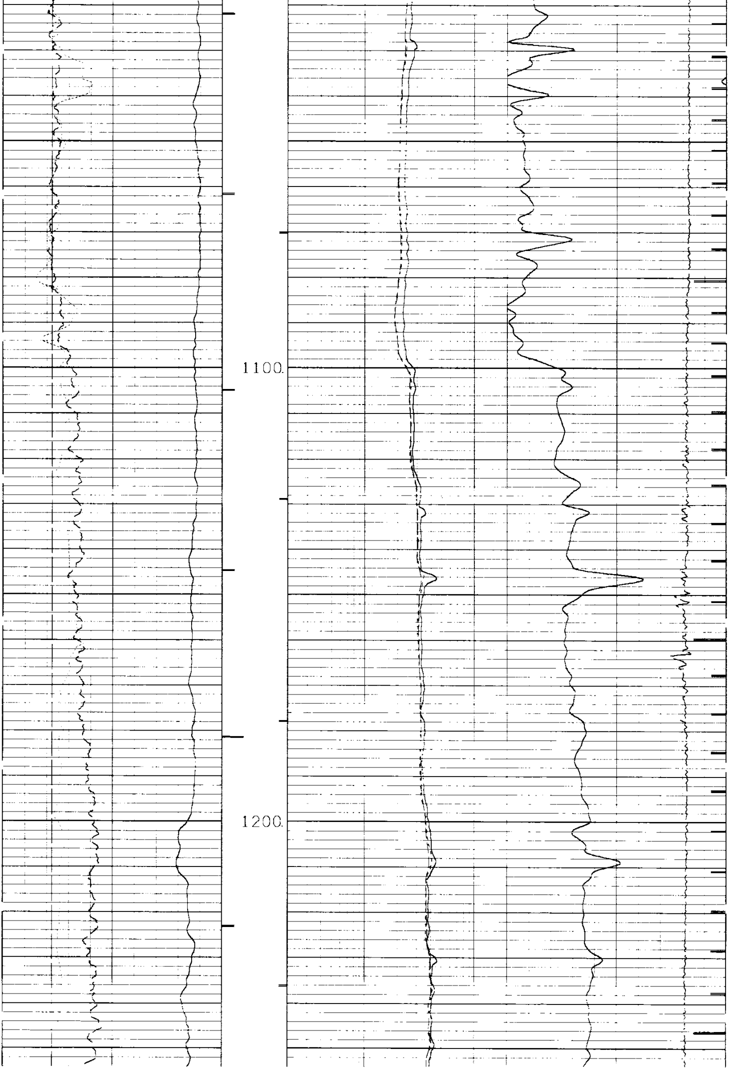
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF. HALLIBURTON

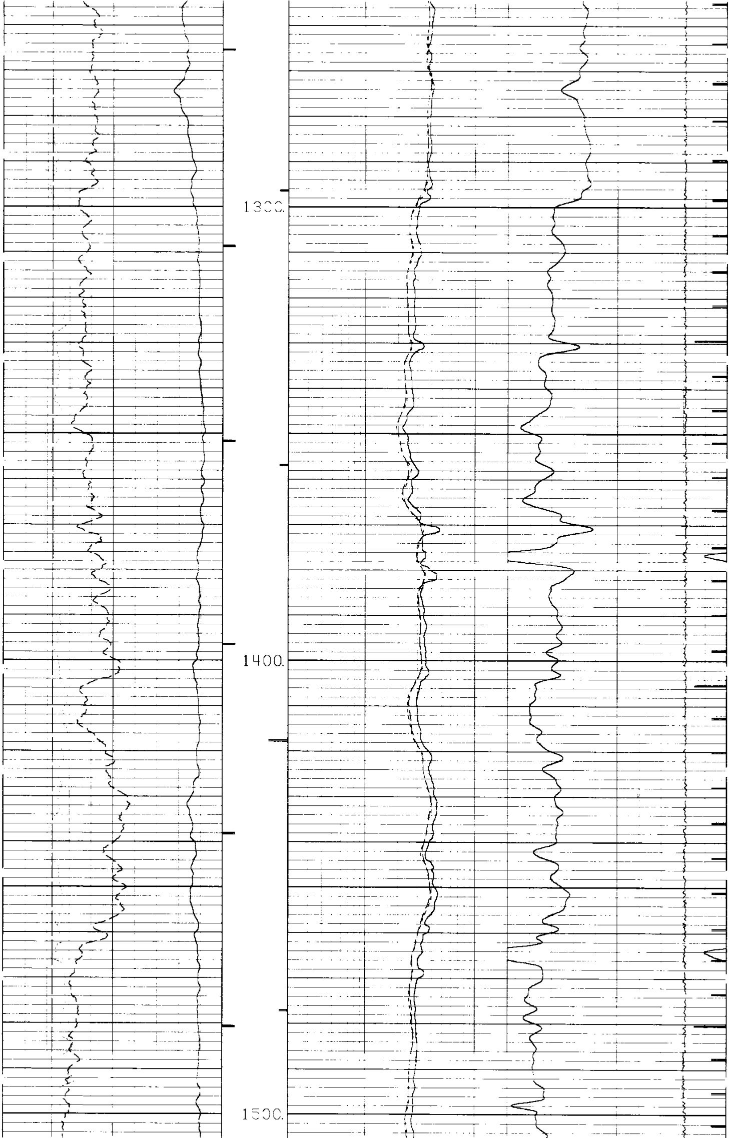
GAMMA	AHV	DEEP	TENSION
0 API COUNTS 150	---->	0.2 OHM-M 20	10000 POUNDS 0
SP	BHV	MEDIUM	DELTA T
-]10[+	<----	0.2 OHM-M 20	150 USEC/FT 50
BIT SIZE		GUARD	ITT MARK
4 INCHES 14		0.2 OHM-M 20	---->
CALIPER			
4 INCHES 14			

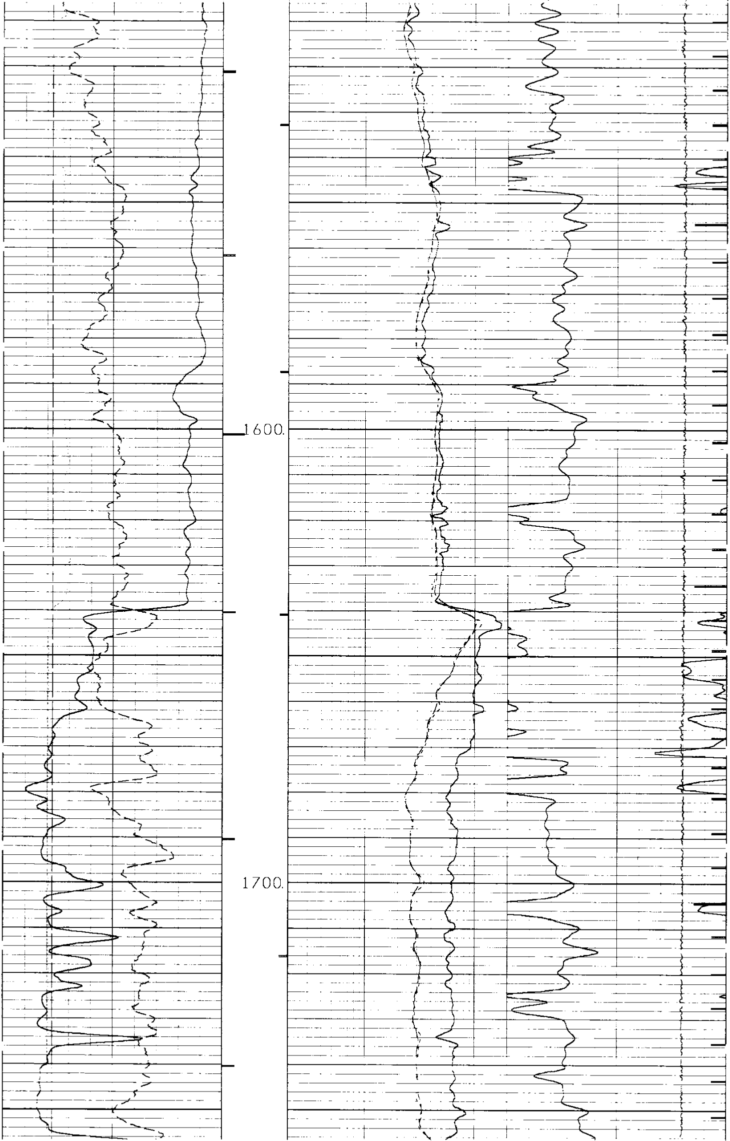


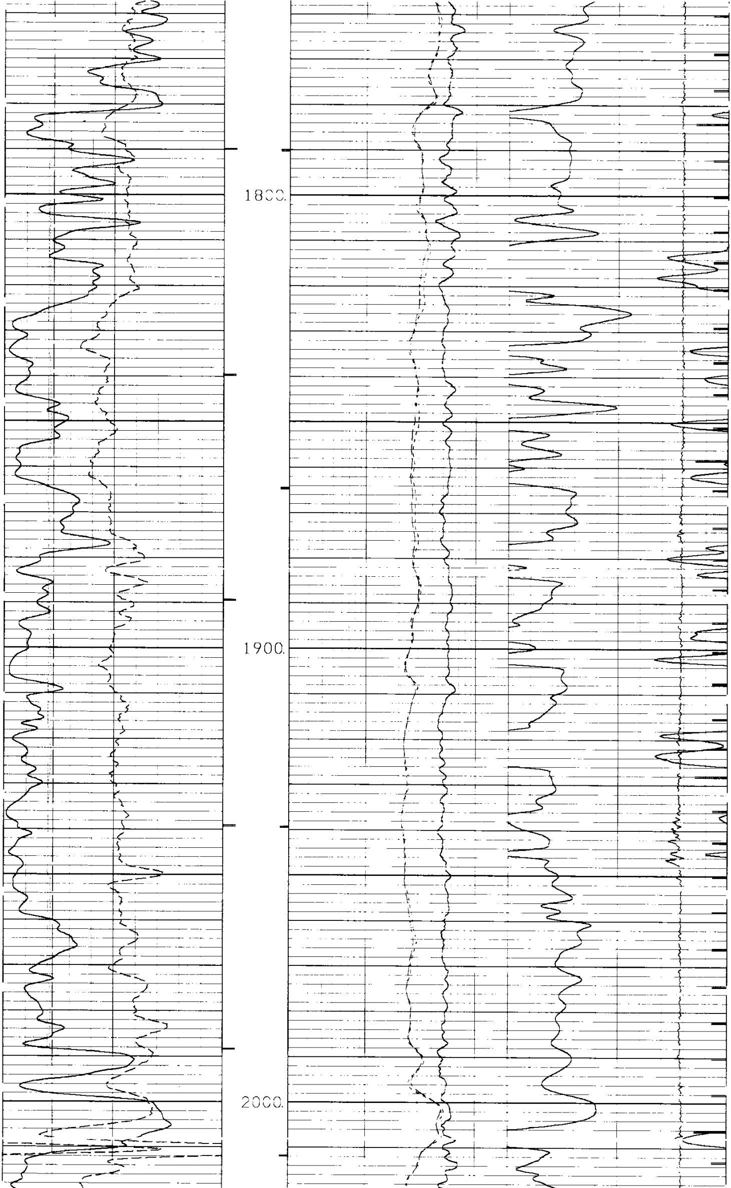


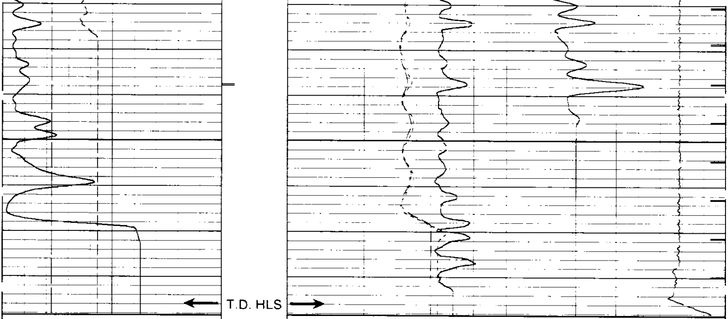










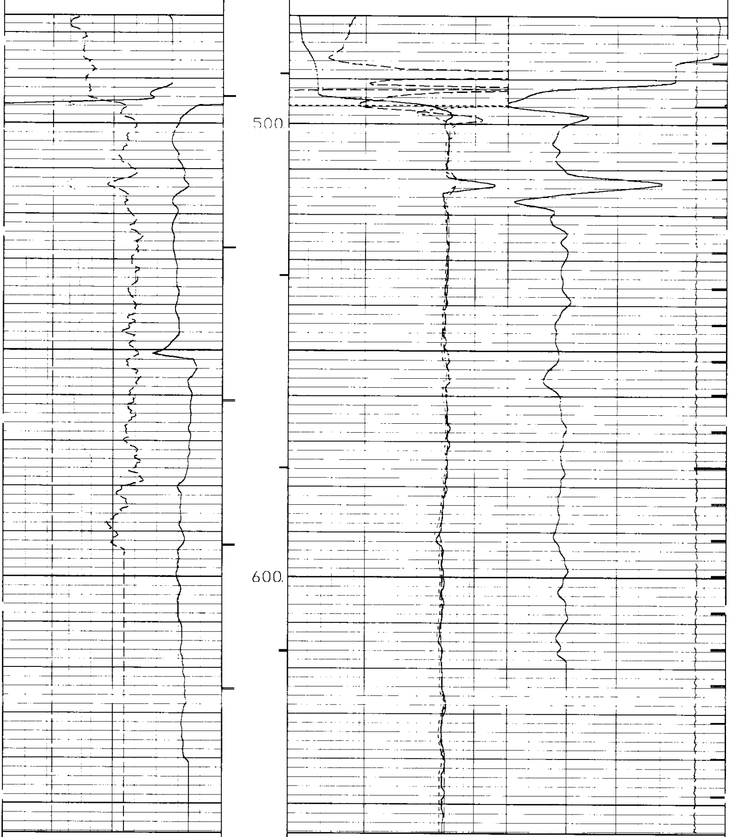


CALIPER			
4 INCHES 14			
BIT SIZE		GUARD	ITT MARK
4 INCHES 14		0.2 OHM-M 20	---->
SP	BHV	MEDIUM	DELTA T
-]10[+	<----	0.2 OHM-M 20	150 USEC/FT 50
GAMMA	AHV	DEEP	TENSION
0 API COUNTS 150	---->	0.2 OHM-M 20	10000 POUNDS 0

```
UPLOG   #  2 Depth:      2088.00 Service:2242.03   Unit:7626
Replay   Log Date: 19-SEP-1996 Time:   13:26:18   Vers:2.80
```

REPEAT SECTION

GAMMA	AHV	DEEP	TENSION
0 API COUNTS 150	---->	0.2 OHM-M 20	10000 POUNDS 0
SP	BHV	MEDIUM	DELTA T
-]10[+	<----	0.2 OHM-M 20	150 USEC/FT 50
BIT SIZE		GUARD	ITT MARK
4 INCHES 14		0.2 OHM-M 20	---->
CALIPER			
4 INCHES 14			



CALIPER			
4 INCHES 14			
BIT SIZE		GUARD	ITT MARK
4 INCHES 14		0.2 OHM-M 20	---->
SP	BHV	MEDIUM	DELTA T
-]10[+	<----	0.2 OHM-M 20	150 USEC/FT 50
GAMMA	AHV	DEEP	TENSION
0 API COUNTS 150	---->	0.2 OHM-M 20	10000 POUNDS 0

UPLOG # 1 Depth: 656.00 Service:2242.03 Unit:7626

Replay Log Date: 19-SEP-1996 Time: 13:10:13 Vers:2.80

```
****************************************************************************

                  M202 CALIPER SHOP CALIBRATION SUMMARY
PERFORMED:  12:58:20  09/19/96    LAST SHOP CALIBRATION:   10:04:02  08/27/96
SERIAL NUMBER: 64259              MODEL: M202
TRUCK UNIT NUMBER: 7626           PROGRAM VERSION: 2.80
PERFORMED BY: M.SCHWARTZ

                        MEASURED        CALIBRATED          UNITS
                        --------        ----------          -----
VALUE 1                   8.590           8.000             INCH
VALUE 2                  18.905          16.000             INCH

               M202 CALIPER BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  12:59:20  09/19/96    LAST SHOP CALIBRATION:   12:58:20  09/19/96

                         SHOP     FIELD    UNITS
                        -------  -------   -----
VALUE  1                  8.222    8.315  INCH

               M202 CALIPER AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:38:01  09/19/96    LAST SHOP CALIBRATION:   12:58:20  09/19/96

                         BEFORE   AFTER    UNITS
                        -------  -------   -----
VALUE  1                  8.315    8.323  INCH


****************************************************************************

                  GAMMA RAY TOOL SHOP CALIBRATION SUMMARY
PERFORMED:  13:48:41  08/26/96    LAST SHOP CALIBRATION:   13:44:45  07/25/96
SERIAL NUMBER: 108581             MODEL: NGRT-A
TRUCK UNIT NUMBER: 7626           PROGRAM VERSION: 2.80
PERFORMED BY: M.SCHWARTZ

                        MEASURED        CALIBRATED          UNITS
                        --------        ----------          -----
BACKGROUND                   21              21              GAPI
BACKGROUND+CALIBRATOR       225             226              GAPI
CALIBRATOR                  204             205              GAPI

GAPI CONVERSION FACTOR     0.503                           GAPI/CPS


              GAMMA RAY TOOL BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  12:56:12  09/19/96    LAST SHOP CALIBRATION:   13:48:41  08/26/96

                          SHOP           FIELD              UNITS
                        --------        ----------          -----
BACKGROUND                 21              10                GAPI
BACKGROUND+CALIBRATOR     226             221                GAPI
CALIBRATOR                205             210                GAPI


              GAMMA RAY TOOL AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:41:28  09/19/96    LAST SHOP CALIBRATION:   13:48:41  08/26/96

                         BEFORE           AFTER             UNITS
                        --------        ----------          -----
BACKGROUND                  10               9               GAPI
BACKGROUND+CALIBRATOR      221             228               GAPI
CALIBRATOR                 210             218               GAPI


****************************************************************************

                DITS DUAL INDUCTION SHOP CALIBRATION SLMMARY
PERFORMED:  15:26:43  08/27/96    LAST SHOP CALIBRATION:   11:04:36  07/18/96
SERIAL NUMBER: 129433             MODEL: DILT-A B
TRUCK UNIT NUMBER: 7626           PROGRAM VERSION: 2.80
PERFORMED BY: M. SCHWARTZ
```

```
                          DEEP INDUCTION          MEDIUM INDUCTION
                      MEASURED   CALIBRATED  MEASURED    CALIBRATED  UNITS
                      --------   ----------  --------    ----------  ------
TOOL ZERO               -0.182       0.000      0.126       0.000    MMHOS/M
INTERNAL REFERENCE     493.512     496.611    497.337     499.022    MMHOS/M
WHEEL                  495.752     500.000    498.351     500.000    MMHOS/M
MANDREL BASE             2.883       2.689      5.231       5.383    MMHOS/M


            DITS DUAL INDUCTION BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  13:00:45  09/19/96    LAST SHOP CALIBRATION:   15:26:43  08/27/96

                          DEEP INDUCTION         MEDIUM INDUCTION
                        SHOP      FIELD        SHOP       FIELD      UNITS
                      --------   ----------  --------    ----------  ------
TOOL ZERO                0.000       1.252      0.000      -0.312    MMHOS/M
INTERNAL REFERENCE     496.611     503.893    499.022     498.996    MMHOS/M
MANDREL BASE             2.689       2.689      5.383       5.383    MMHOS/M

             DITS DUAL INDUCTION AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:30:57  09/19/96    LAST SHOP CALIBRATION:   15:26:43  08/27/96

                          DEEP INDUCTION         MEDIUM INDUCTION
                       BEFORE     AFTER        BEFORE     AFTER      UNITS
                      --------   ----------  --------    ----------  ------
TOOL ZERO                1.252       1.820     -0.312      -0.261    MMHOS/M
INTERNAL REFERENCE     503.893     505.338    498.996     499.187    MMHOS/M
MANDREL BASE             2.689       2.689      5.383       5.383    MMHOS/M



*****************************************************************************

                    SHORT GUARD SHOP CALIBRATION SUMMARY
PERFORMED:  15:18:53  08/27/96    LAST SHOP CALIBRATION:   10:50:59  07/18/96
SERIAL NUMBER: 108932             MODEL: DSGT-A B
TRUCK UNIT NUMBER: 7626           PROGRAM VERSION: 2.80
PERFORMED BY: M. SCHWARTZ

                      MEASURED   CALIBRATED  UNITS
                      --------   ----------  ------

EXT. CAL. POINT #1       2.035       2.000   OHM-M
EXT. CAL. POINT #2      20.245      20.000   OHM-M
EXT. CAL. POINT #3     202.827     200.000   OHM-M
INTERNAL REFERENCE      20.048      19.807   OHM-M

                SHORT GUARD BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  13:01:21  09/19/96    LAST SHOP CALIBRATION:   15:18:53  08/27/96

                       SHOP     FIELD    UNITS
                      -------  -------  --------

INTERNAL REFERENCE      19.807   19.810 OHM-M


                 SHORT GUARD AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:31:35  09/19/96    LAST SHOP CALIBRATION:   15:18:53  08/27/96

                       BEFORE     AFTER      UNITS
                      --------   ----------  ------

INTERNAL REFERENCE      19.810      19.791   OHM-M



                      PLS-II CALIBRATION SUMMARY TABLE
                     --------------------------------

  SERVICE or SIGNAL         SHOP       BEFORE       AFTER      CHANGE   TOLERANCE
-----------------------  ----------  ---------  ---------  --------  ---------


 CALIPER VALUE 1           8.000       8.315       8.323     -0.008   +/-0.5
 GAMMA                    225         212         219        -7       +/- 9.0
 DEEP INTERNAL REFERENCE  496.611     503.893     505.338    -1.445   +/-20
 MEDIUM INTERNAL REFERENCE 499.022    498.996     499.187    -0.191   +/-20
 DEEP TOOL ZERO             0.000       1.252       1.820    -0.568   +/-2
 MEDIUM TOOL ZERO           0.000      -0.312      -0.261    -0.051   +/-2
```

```
GUARD                                 19.807       19.810       19.791       0.020  +/-0.8
```