CC 34-04-65 API 36-009-00228 Permit #391

WELEX

OPEN HOLE

COMPENSATED DENSITY
DUAL SPACED NEUTRON
LOG

COMP. ARCO OIL AND GAS CO.
WELL COLUMBIA COUNTY 34-4-6
FIELD MIST
COUNTY COLUMBIA ST. OREGON

COMPANY ARCO OIL AND GAS CO.

WELL COLUMBIA COUNTY 34-4-65

FIELD MIST

COUNTY COLUMBIA STATE OREGON

API NO.
LOCATION N 2 35 51
W 118.71
S 87 24 09
E 606.15

SEC. 4 TWP. 6N RGE. 5W

OTHER SERVICES

PERMANENT DATUM GROUND LEVEL ELEV. 870.68
LOG MEASURED FROM KELLY BUSHING 10 FT. ABOVE PERM. DATUM
DRILLING MEASURED FROM KELLY BUSHING

ELEV.: K.B. 880.68
D.F. 879.68
G.L. 870.68

DATE	10/16/87			
RUN NO.	ONE			
DEPTH-DRILLER	3382			
DEPTH-WELEX	3375			
BTM. LOG INTER.	3370			
TOP LOG INTER.	442			
CASING-DRILLER	444 @ 9 5/8	@	@	@
CASING-WELEX	442			
BIT SIZE	8.5			
TYPE FLUID IN HOLE	POLYMER			
DENS. | VISC.	10.4 | 46	|	|	|
PH | FLUID LOSS	8.4 | 4.8ML	| ML	| ML	| ML
SOURCE OF SAMPLE	FLOW LINE			
RM @ MEAS. TEMP.	1.35@ 75 F	@ F	@ F	@ F
RMF @ MEAS. TEMP.	1.08@ 75 F	@ F	@ F	@ F
RMC @ MEAS. TEMP.	1.68@ 75 F	@ F	@ F	@ F
SOURCE RMF RMC	MEAS | MEAS	|	|	|
RM @ BHT	@ F	@ F	@ F	@ F
TIME CIRC. STOPPED	16:30			
TIME ON BOTTOM	23:45			
MAX. REC. TEMP.	109 F@ 3375	F@	F@	F@
EQUIP. | LOCATION	2083 | WOODLAND	|	|	|
RECORDED BY	STARNES			
WITNESSED BY	MR. H.ANDERSON			

CONFIDENTIAL

FOLD HERE

SERVICE TICKET NO.: API SERIAL NO.: PCM VERSION: V1.07 09/06/85

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
RUN NO.	ONE	RUN NO.		RUN NO.	ONE	RUN NO.	ONE
SERIAL NO.	102710	SERIAL NO.		SERIAL NO.	D125	SERIAL NO.	102710
MODEL NO.	285	MODEL NO.		MODEL NO.	1278	MODEL NO.	285
DIAMETER	3 3/8	NO. OF CENT.		DIAMETER	4	DIAMETER	3 3/8
DETECTOR MODEL NO.	102A	SPACING		LOG TYPE	GR/GR	LOG TYPE	NE/NE
TYPE	SCINT			SOURCE TYPE	CES-137	SOURCE TYPE	AM BE 241
LENGTH	NA	LSA	YES NO	SERIAL NO.	DCS 81	SERIAL NO.	
DISTANCE TO SOURCE	NA	FWDA	YES NO	STRENGTH	500MC	STRENGTH	18

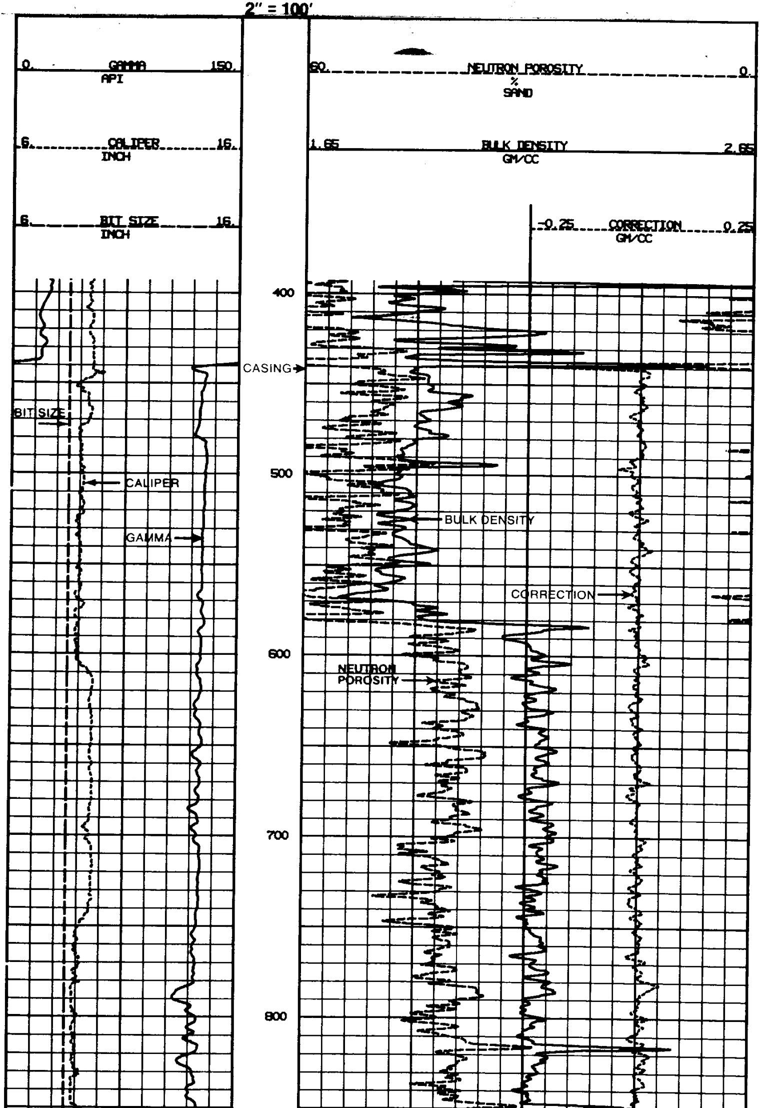
LOGGING DATA

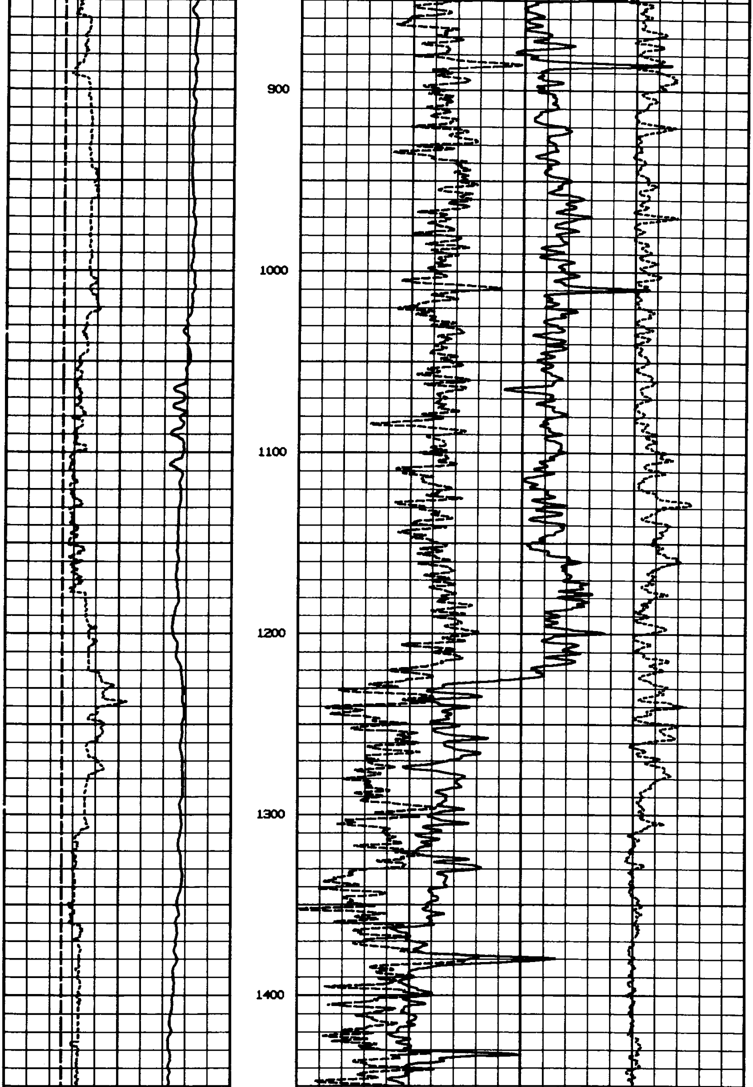
GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
RUN	DEPTHS		SPEED	SCALE		SCALE			SCALE			SCALE		
NO.	FROM	TO	FT/MIN	L	R	L	R	MATRIX	L	R	MATRIX	L	R	MATRIX

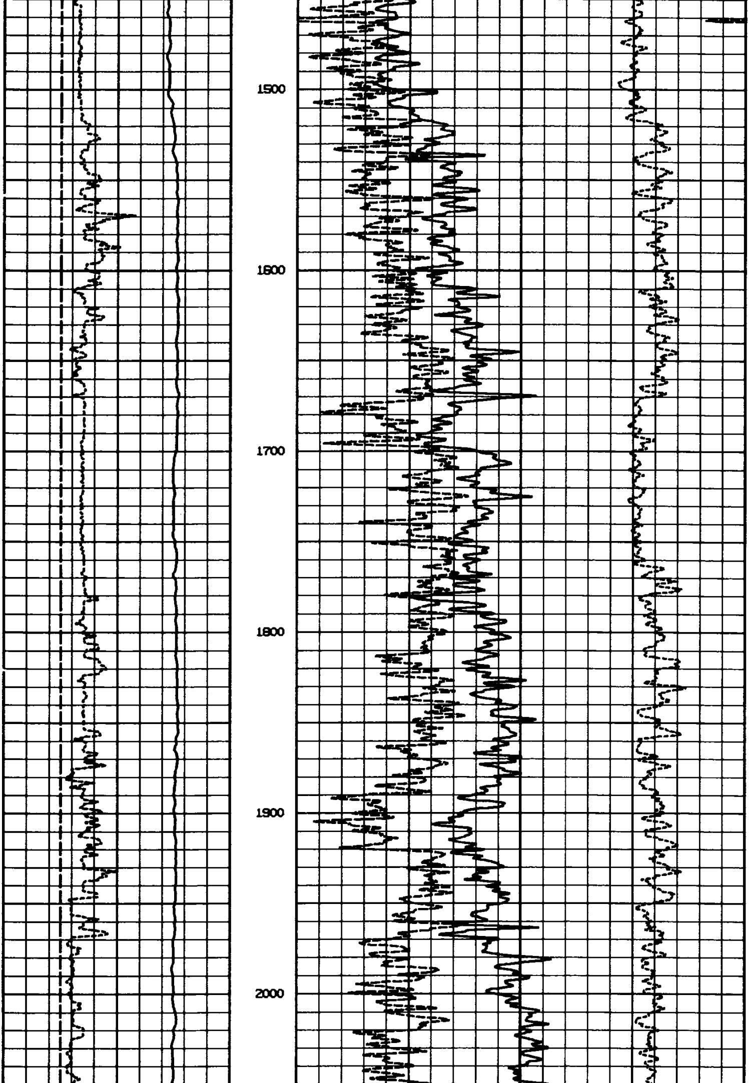
REMARKS:

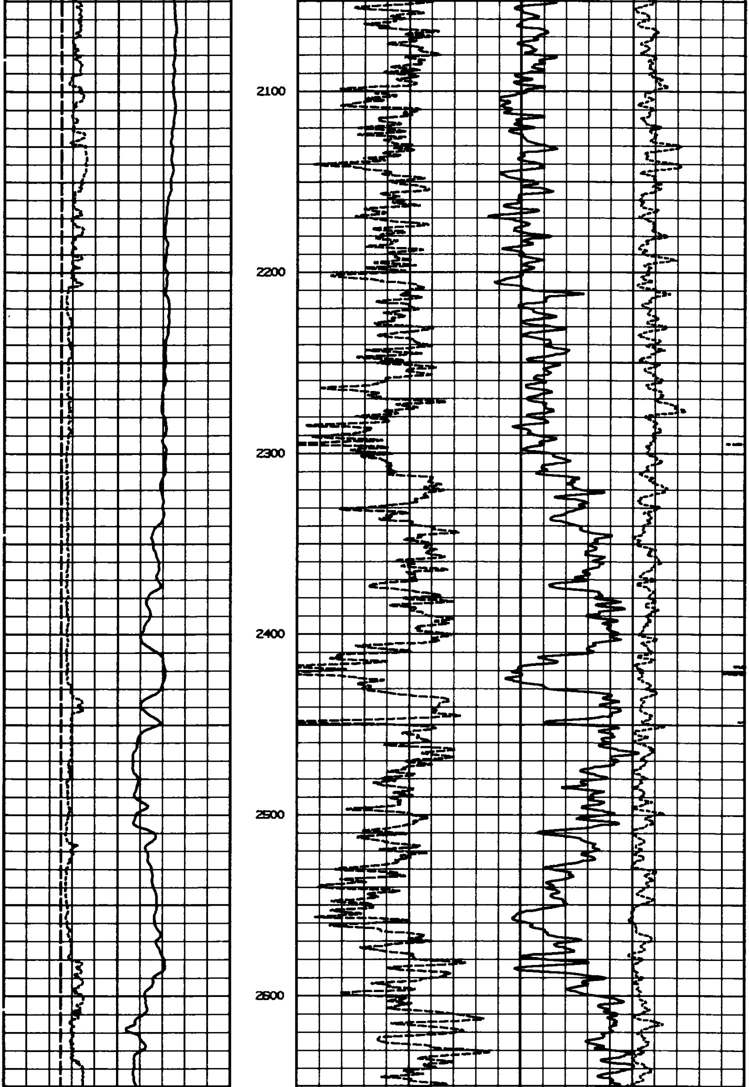
WELEX DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS, OR RECOMMENDATIONS WHICH MAY BE GIVEN BY WELEX PERSONNEL OR WHICH MAY APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, OR CONVERSIONS, OR RECOMMENDATIONS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

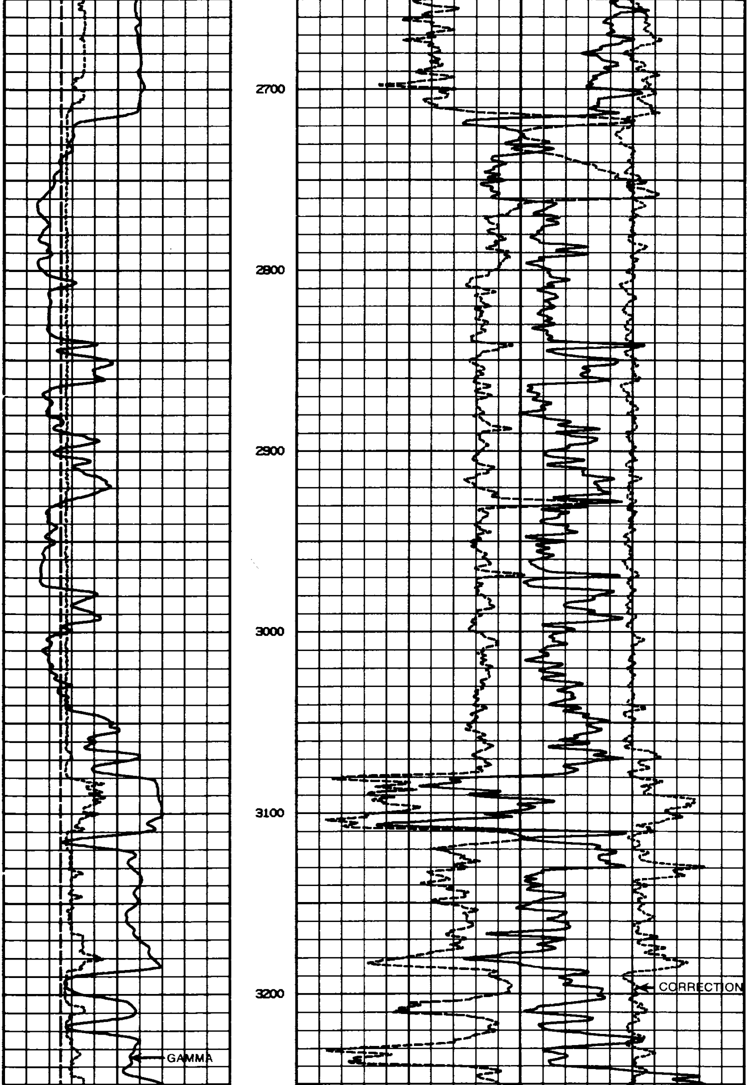
2" = 100'

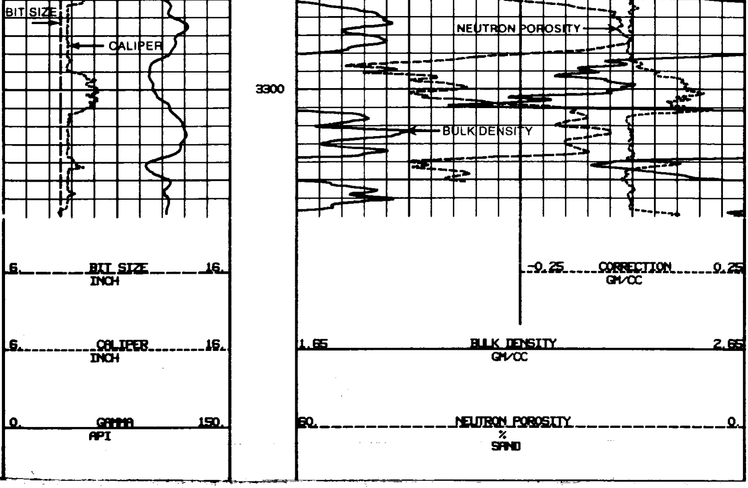












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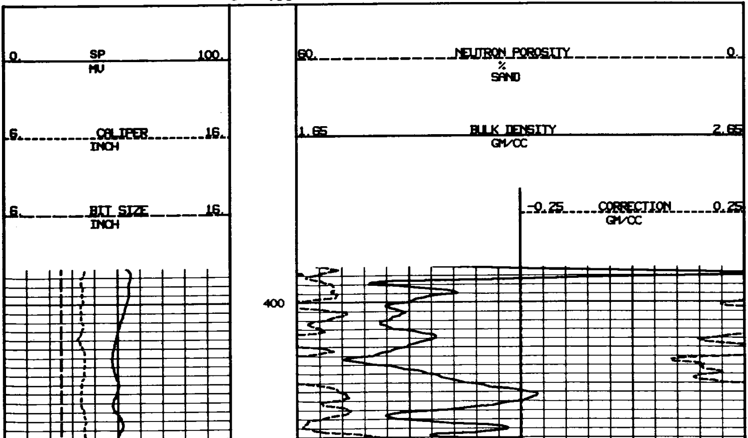
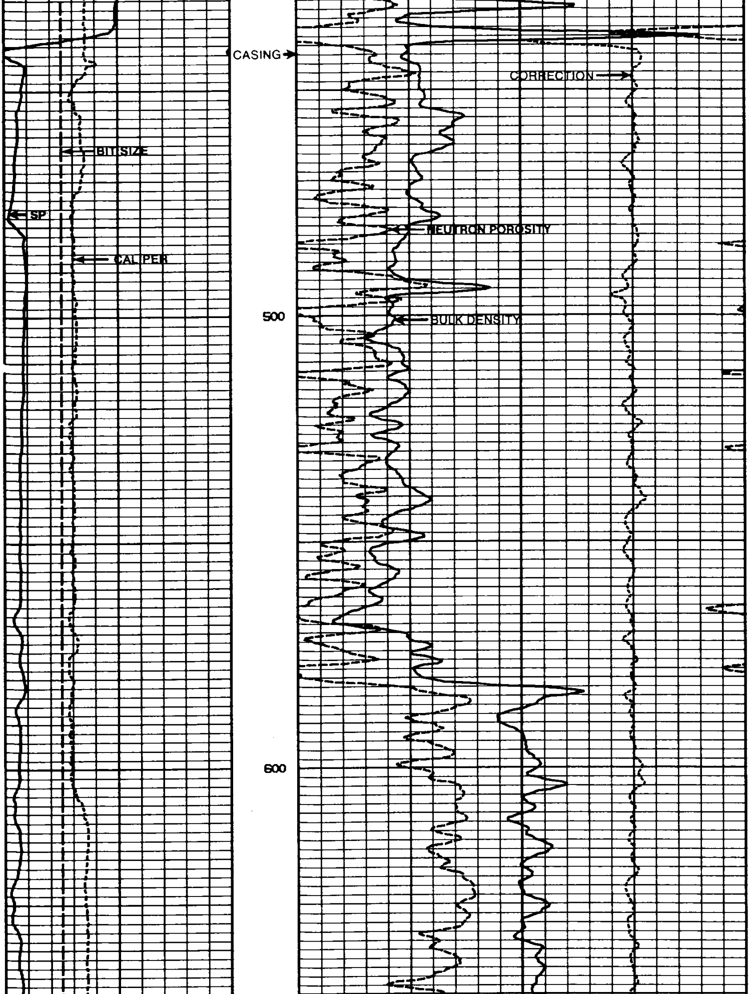
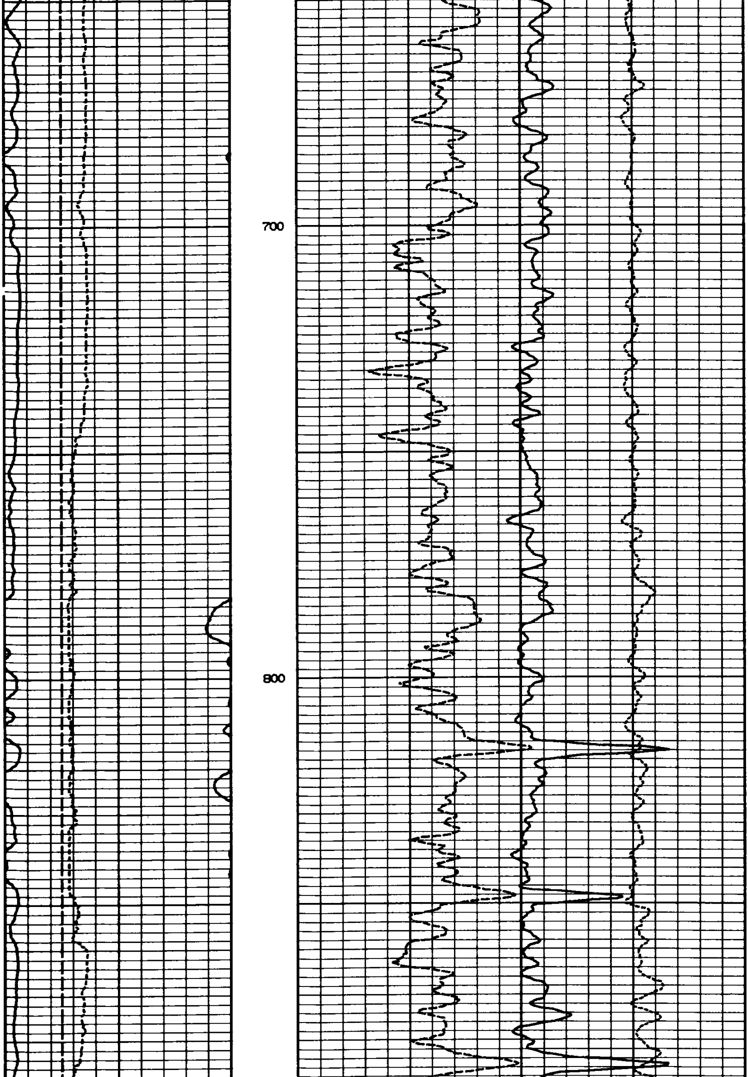
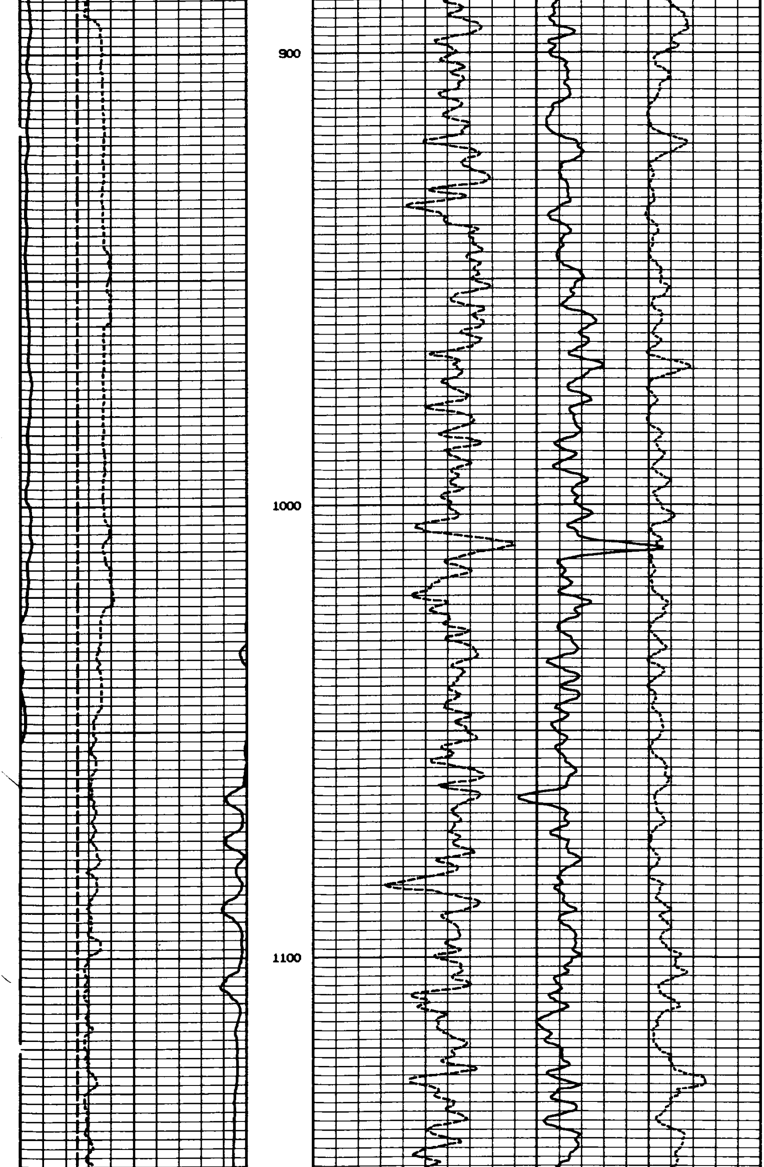
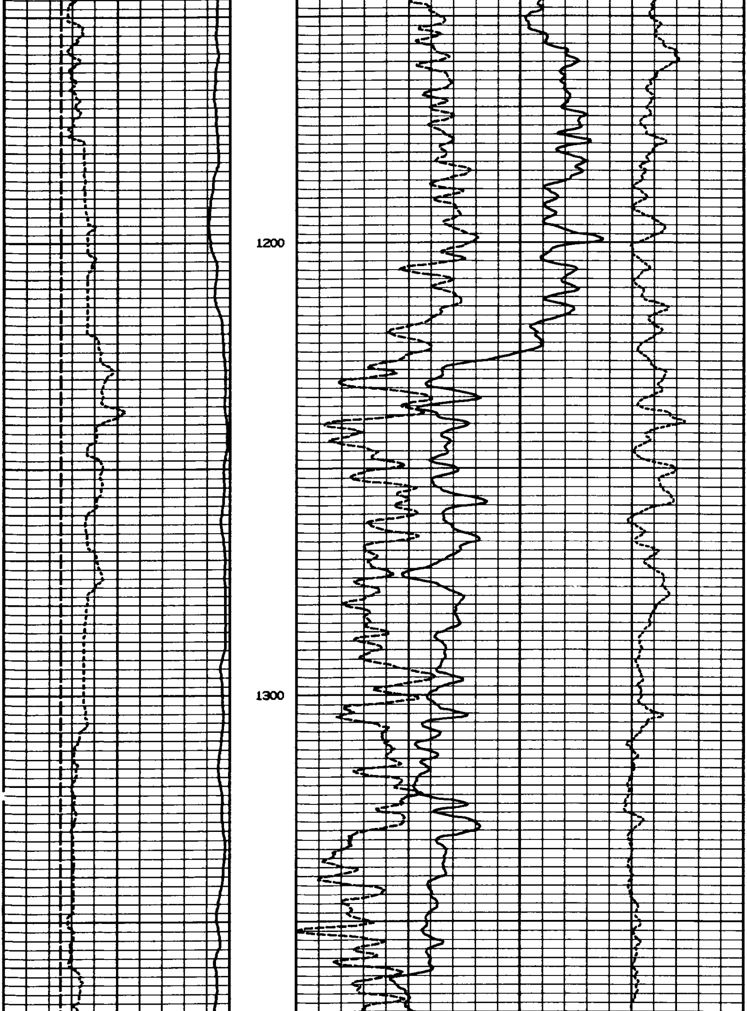
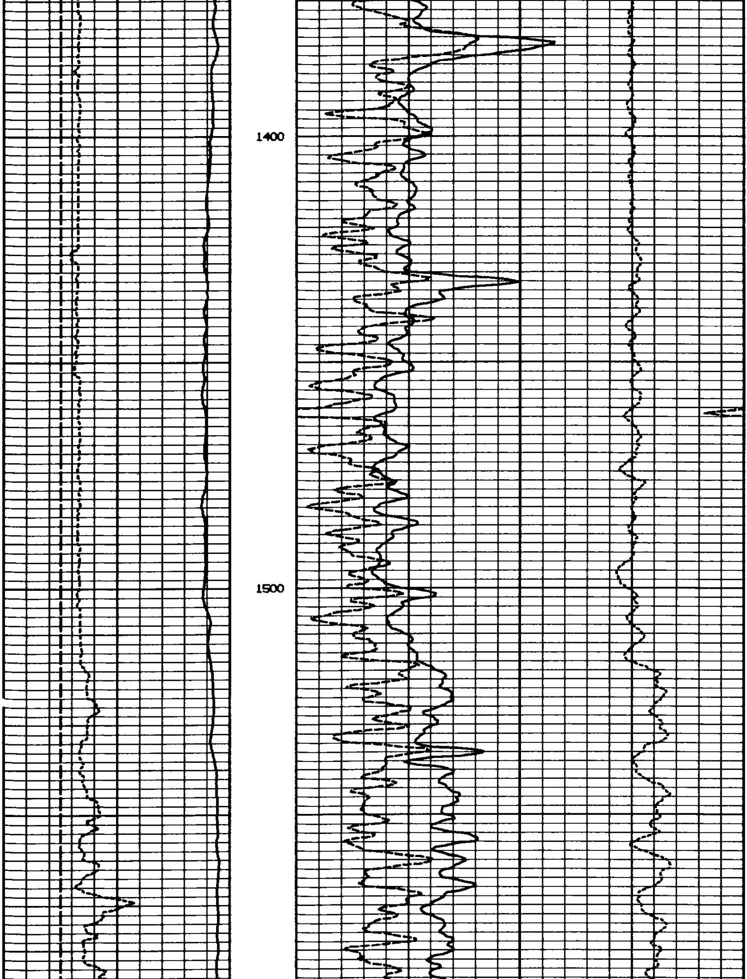


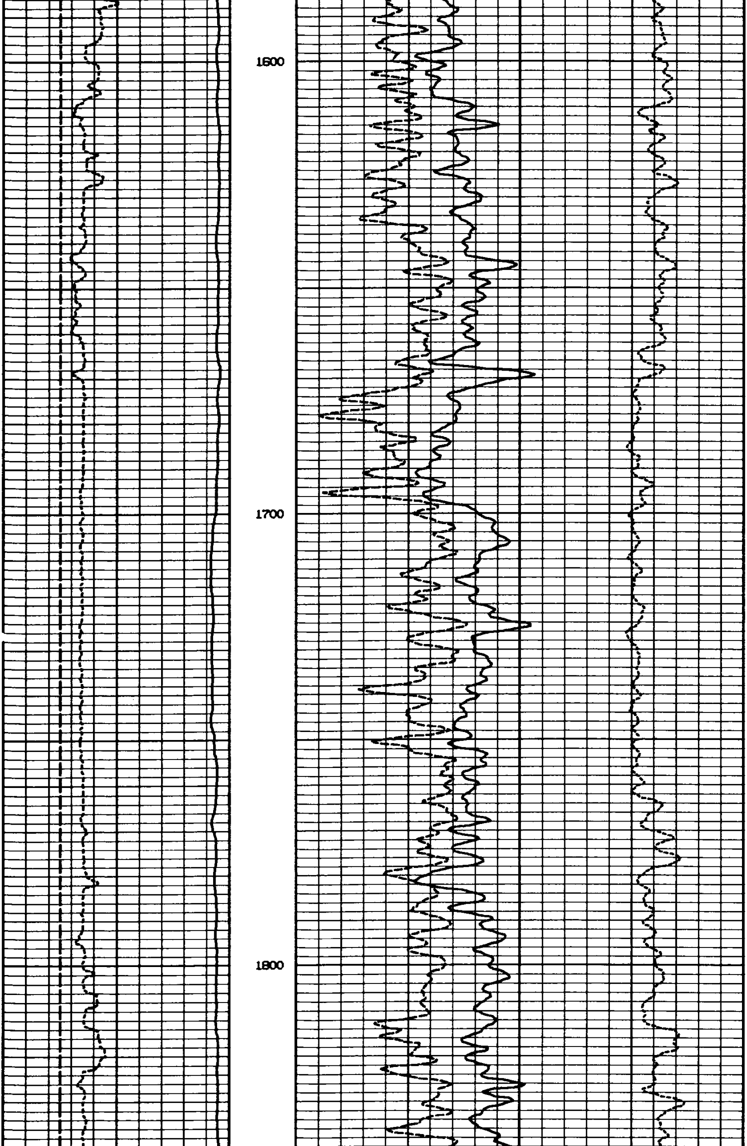


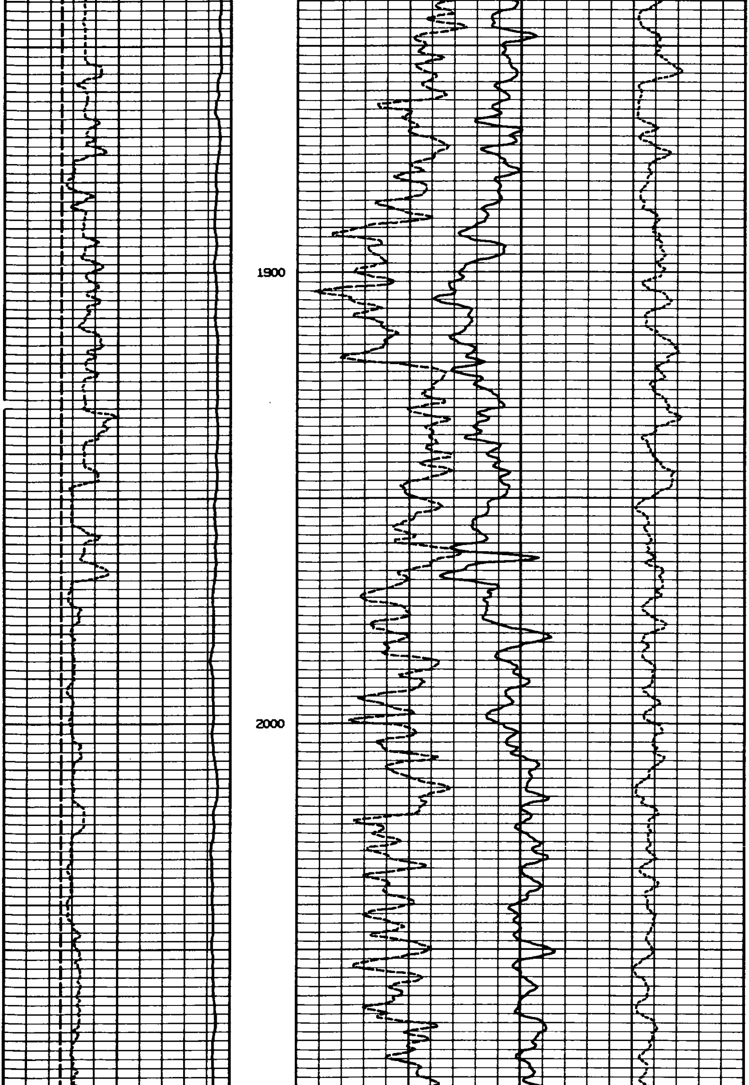


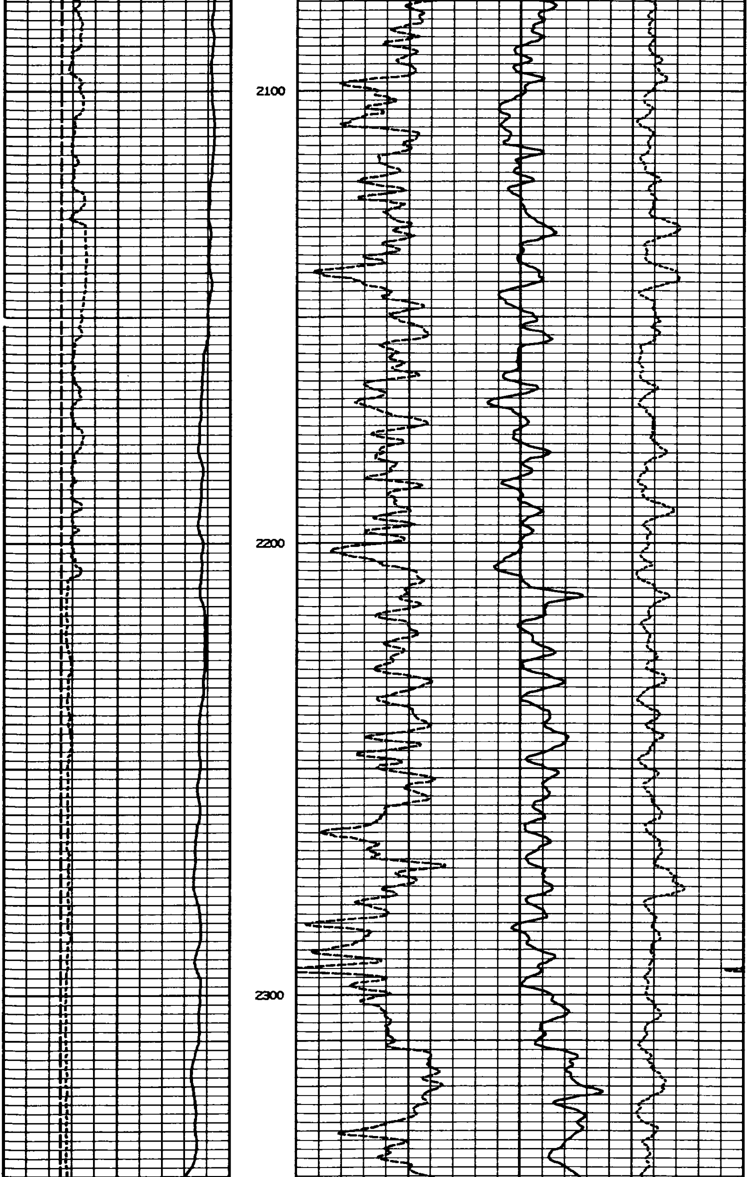


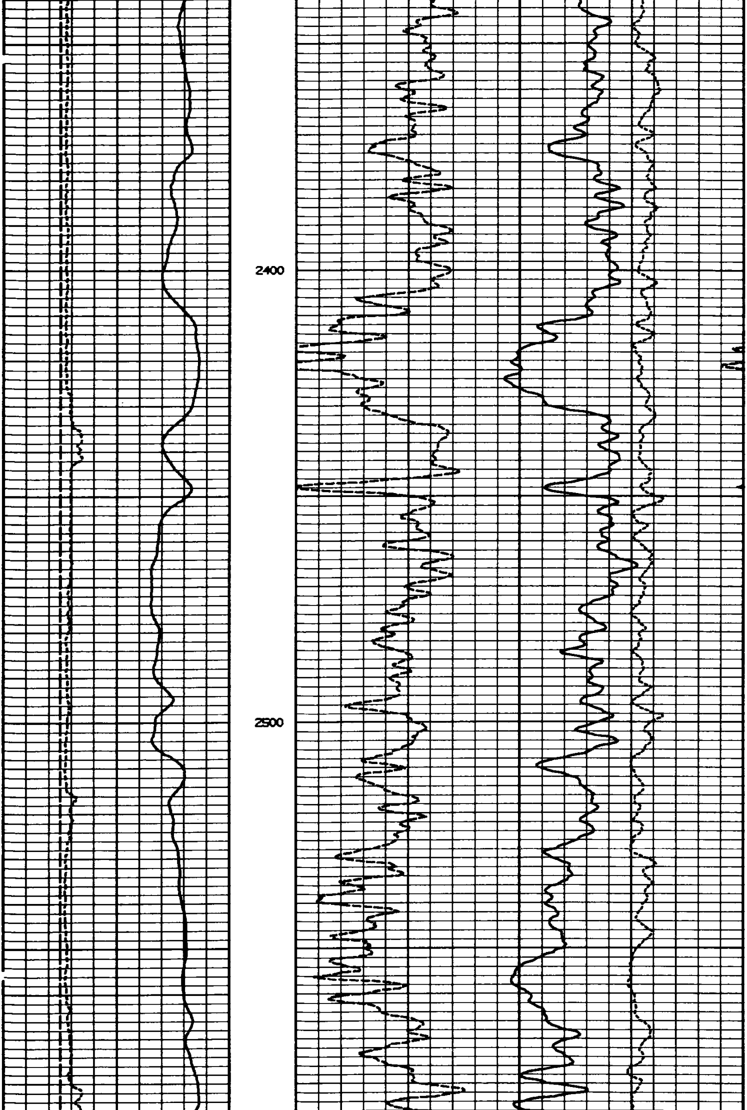


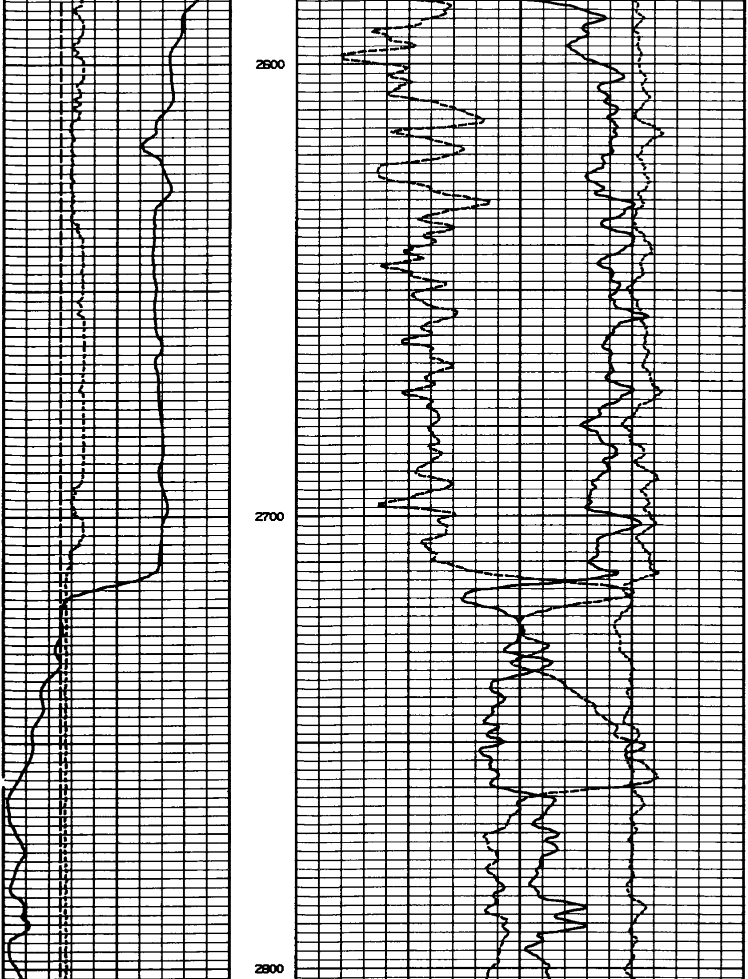


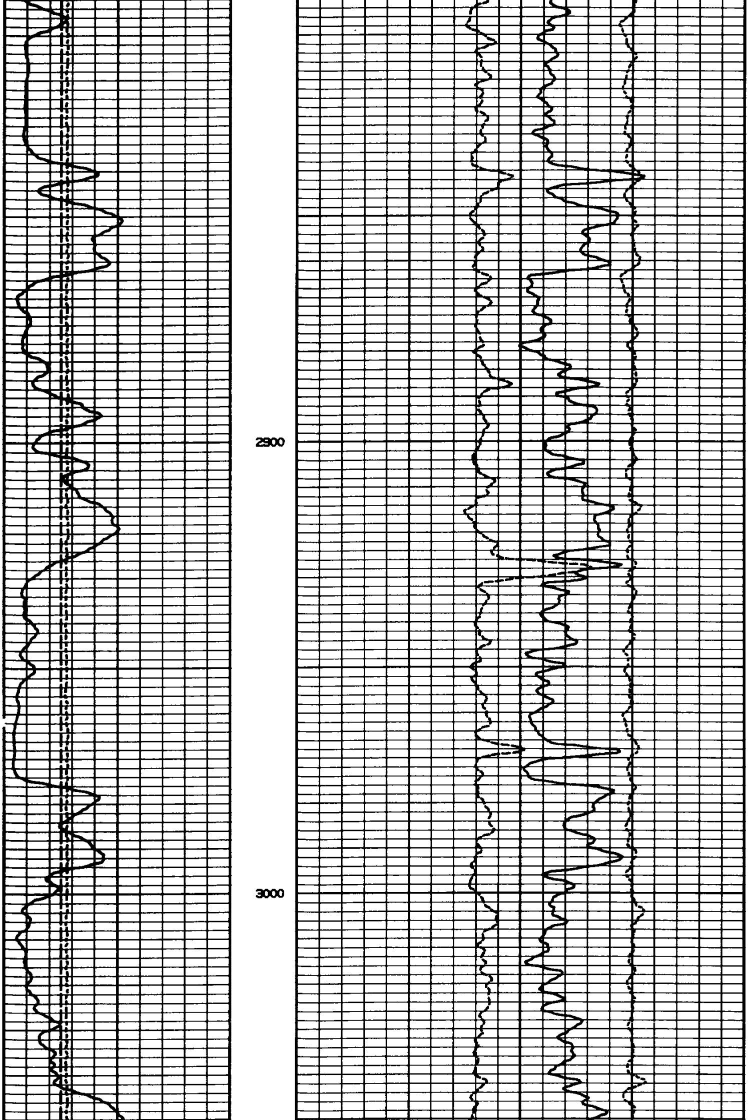


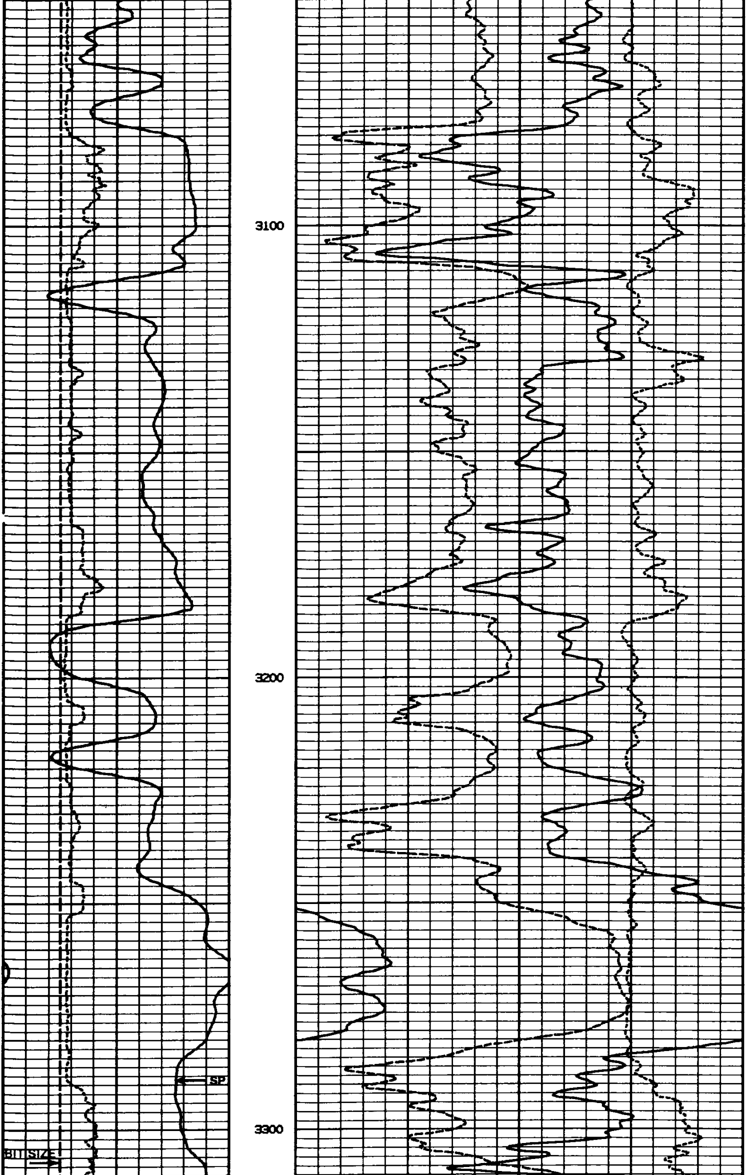


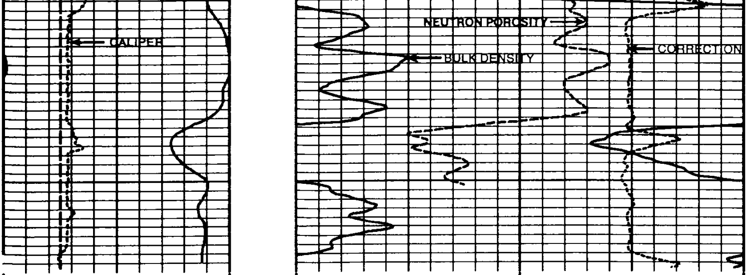












6. BIT SIZE 16.
INCH

-0.25 CORRECTION 0.25
GM/CC

6. CALIPER 16.
INCH

1.65 BULK DENSITY 2.65
GM/CC

0. SP 100.
MV

60. NEUTRON POROSITY 0.
%
SAND

REPEAT SECTION

0. SP 100.
MV

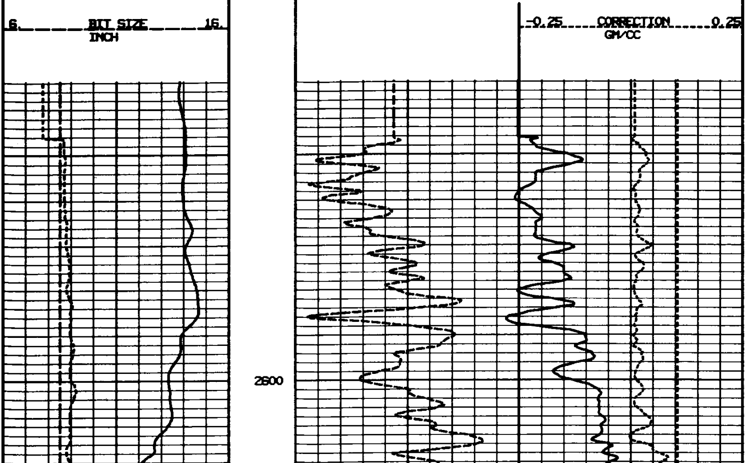
60. NEUTRON POROSITY 0.
%
SAND

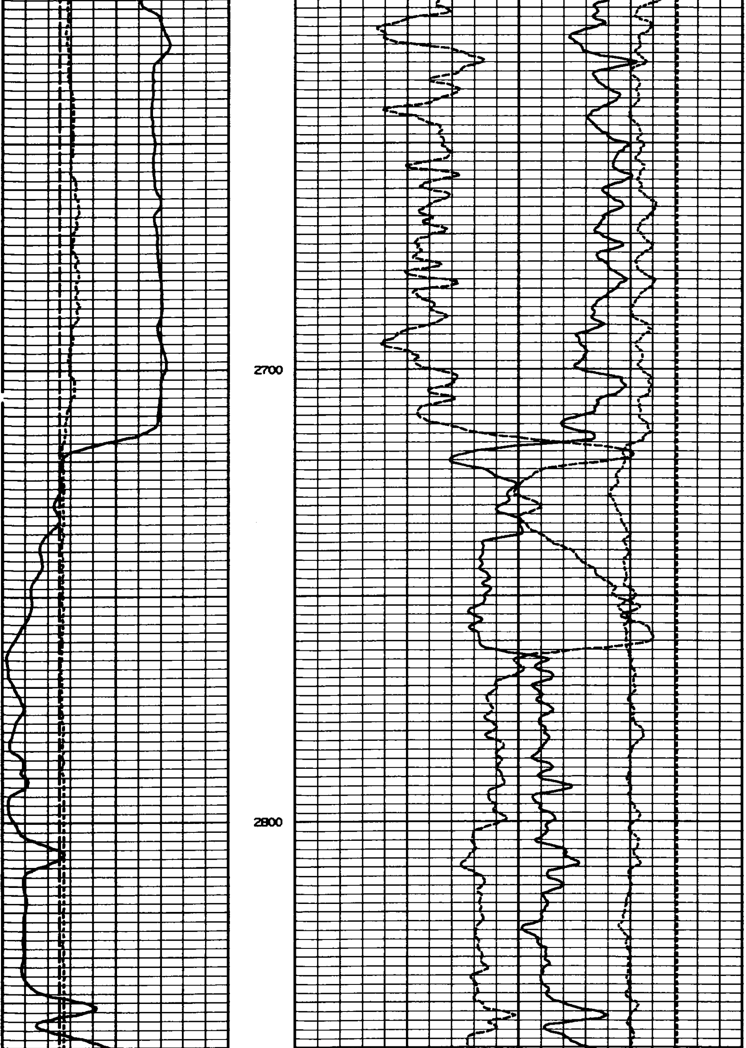
6. CALIPER 16.
INCH

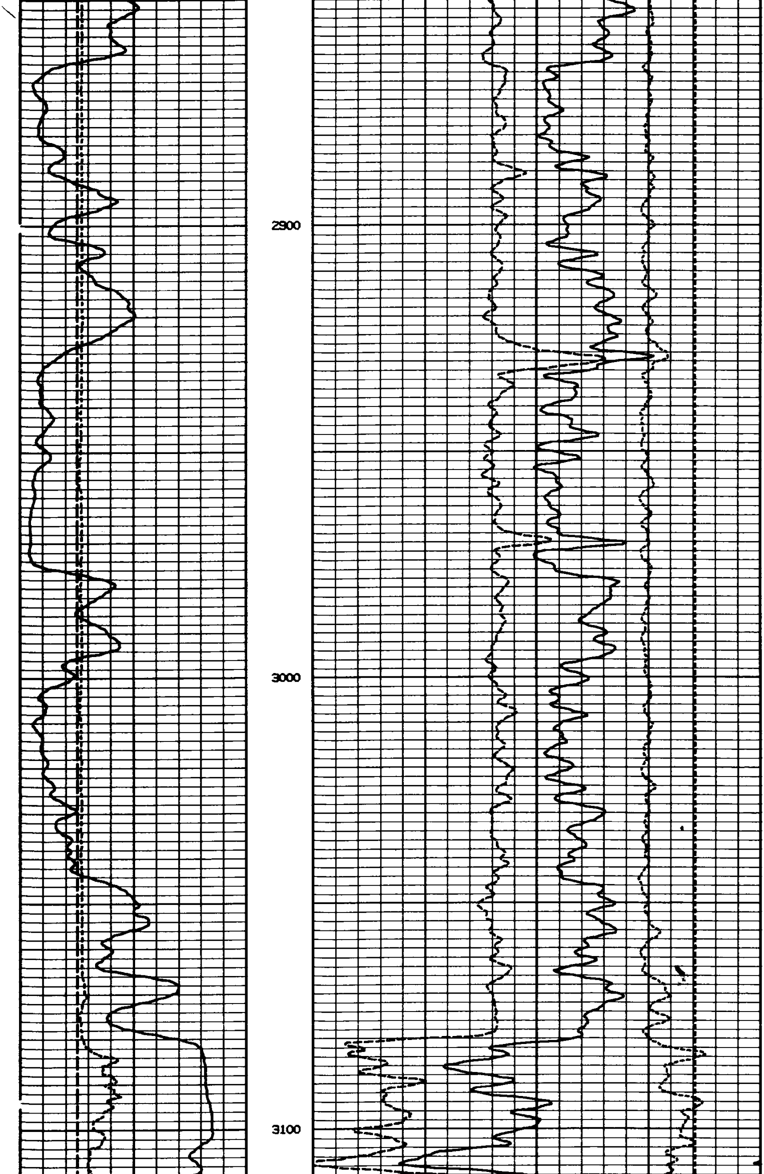
1.65 BULK DENSITY 2.65
GM/CC

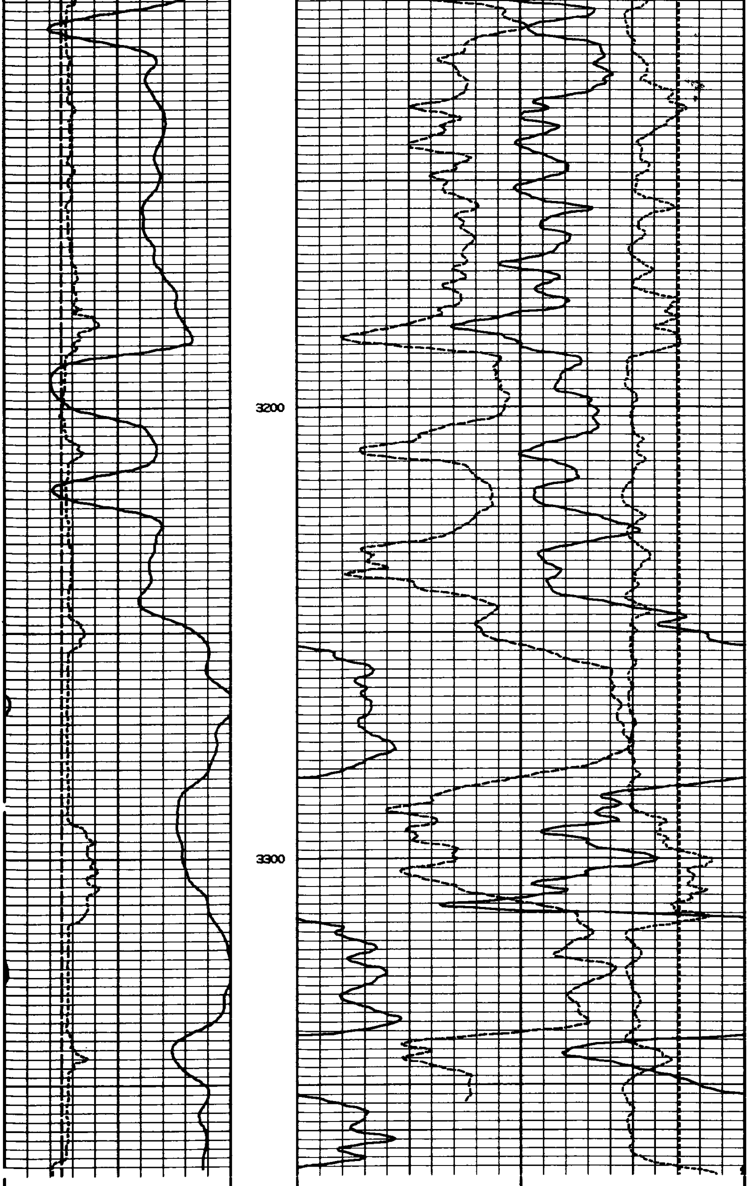
6. BIT SIZE 16.
INCH

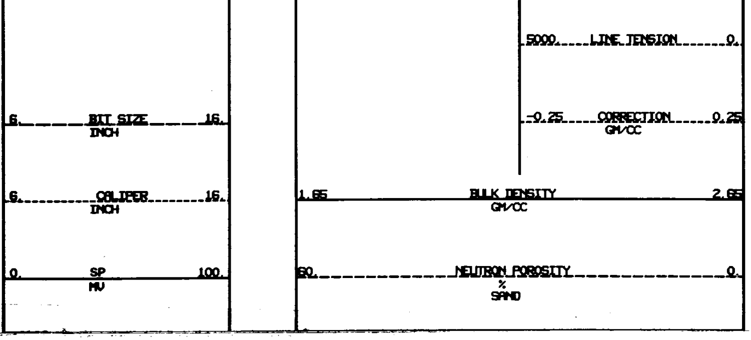
-0.25 CORRECTION 0.25
GM/CC











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                    ENG V1.87 09/06/85 DENSITY DSN
                                    TOOL TABLE
SUB  SERIAL #   MODEL  SOURCE #  CALB #    NRM1      INT1  NRM2     INT2  DLY    TCH
DSN  102710     265    0         0
 LDSN                                      0.98574      0        0     0 21.25 18, 0
 SDSN                                      7.96026      0        0     0 19.75 17, 0
GR   102710     265    0         0         0.41111      0        0     0 34.25 19, 0
DEN  D125       123    0         0
 LDEN                                      -1.3649      0 5.68919      0   0.5  2, 0
 SDEN                                      -6.2729      0 21.0558      0   0.   3, 0
CALI D125       123    0         0         0.00284    518      0.      0   1.5  5, 0
MNOR 123        123    0         0              0.      0      0.      0   1.8 10, 0
MLAT 123        123    0         0              0.      0      0.      0   1.8  9, 0
CCL  0          0      0         0              0.      0      0.      0   0.   7, 0
SP   0          0      0         0              0.      0      0.      0   0.   0, 0
TENS 1888       17     0         0              3.   -100      0.      0   0.  A5, 0
GPC1 0          0      0         0              0.      0      0.      0   0.   0, 0
GPC2 0          0      0         0              0.      0      0.      0   0.   0, 0
```

```
                   DSN FIELD CHECK BEFORE SURVEY

PERFORMED   10/ 16/ 87      LAST SHOP CALIB    10/ 01/ 87
PROGRAM VERSION V1.87

                           FIELD CALIBRATOR
                          SHOP               FIELD
RATIO                   54.607             54.564

SER # 102710       MOD. # 265     SRC. # 0           FLD CAL. # 0
```

```
               BEFORE SURVEY DENSITY FIELD CHECK

PERFORMED   10/ 16/ 87
PROGRAM VERSION V1.87

                             SHOP VALUE           FIELD CHECK
                         DENSITY     CORR.     DENSITY     CORR.
 DENSITY FIELD CHECK      2.1126    -0.031      2.0902    -0.035

SER # D125         MOD. # 123     SRC. # 0           FLD CAL. # 0
```

```
GAMMA FIELD CALIBRATION
PERFORMED   10/ 16/ 87      LAST SHOP CALIB    10/ 10/ 87
PROGRAM VERSION V1.87

                TOOL VALUE   MEASURED    CALIBRATED    UNITS
BKGRND               48.      19.891       19.733      GAPI
CAL                 678.      261.07       259.        GAPI
NORMALIZER 0.4111
INTERCEPT        0.

SER # 102710       MOD. # 265     SRC. # 0           FLD CAL. # 0
```

```
CALI FIELD CALIBRATION
PERFORMED     10/ 16/ 87      LAST SHOP CALIB    10/ 16/ 87
PROGRAM VERSION V1.87

                 TOOL VALUE    MEASURED     CALIBRATED     UNITS
VALUE 1            3334.      7.9628            8.          INCH
VALUE 2            6150.      16.017           16.          INCH



                          DENSITY FIELD CHECK CALIBRATION

  PERFORMED    10/ 12/ 87
  PROGRAM VERSION V1.87

                                SHOP         FIELD        UNITS
   LONG SPACE, ZERO             3547.        3548.        TOOL VAL
             , CONSTANT       0.1537       0.1535         CPS/TV
             , BACKGROUND         0.        0.307         CPS
             , COUNT RATE       396.       400.08         CPS
             , AL             -1.365                      GM/CC
             , BL             5.6892                      GM/CC
  SHORT SPACE, ZERO             3548.        3547.        TOOL VAL
             , CONSTANT       0.1537       0.1534         CPS/TV
             , BACKGROUND     0.1537       0.1534         CPS
             , COUNT RATE     1010.4       1006.3         CPS
             , AS             -6.273                      GM/CC
             , BS             21.056                      GM/CC
               DENSITY        2.1126       2.0984         GM/CC
               CORRECTION     -0.031       -0.039         GM/CC

  SER # D125        MOD. # 123     SRC. # 0          FLD CAL. # 0
CALI SHOP CALIBRATION
PERFORMED     10/ 16/ 87      LAST SHOP CALIB    10/ 16/ 87
PROGRAM VERSION V1.87

                 TOOL VALUE    MEASURED     CALIBRATED     UNITS
VALUE 1            3347.       8.178            8.          INCH
VALUE 2            6144.      15.836           16.          INCH
NORMALIZER 0.0029
INTERCEPT     550.

SER # D125        MOD. # 123     SRC. # 0          FLD CAL. # 0



CALI FIELD CALIBRATION
PERFORMED     10/ 16/ 87      LAST SHOP CALIB    10/ 16/ 87
PROGRAM VERSION V1.87

                 TOOL VALUE    BEFORE       AFTER      UNITS
VALUE 1            3338.         8.        8.0088       INCH
VALUE 2            6338.        16.        16.529       INCH



                         AFTER LOG CALI CALIBRATION SUMMARY

PERFORMED     10/ 16/ 87      LAST SHOP CALIB    10/ 16/ 87
PROGRAM VERSION V1.87

                  BEFORE       AFTER    UNITS
VALUE 1               8.      8.0088     INCH
VALUE 2              16.      16.529     INCH


SER # D125        MOD. # 123     SRC. # 0          FLD CAL. # 0



GAMMA FIELD CALIBRATION
PERFORMED     10/ 16/ 87      LAST SHOP CALIB    10/ 16/ 87
PROGRAM VERSION V1.87

                      TOOL VALUE                CALIBRATED              UNITS
                   BEFORE     AFTER         BEFORE        AFTER
BACKGROUND           48.       55.          19.733       22.611         GAPI
CALIBRATE           678.      681.          259.         257.35         GAPI

SER # 102710      MOD. # 265     SRC. # 0          FLD CAL. # 0



                         AFTER LOG GAMMA RAY CALIBRATION SUMMARY

PERFORMED     10/ 16/ 87      LAST SHOP CALIB    10/ 16/ 87
PROGRAM VERSION V1.87
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```
                     BEFORE     AFTER      UNITS
BACKGROUND           19.733     22.611     GAPI
CALIBRATE              259.     257.35     GAPI


SER # 102710      MOD. # 265      SRC. # 0            FLD CAL. # 0




                     AFTER SURVEY DENSITY CALIBRATION

PERFORMED   10/ 16/ 87     LAST SHOP CALIB    10/ 01/ 87
PROGRAM VERSION V1.87

                                BEFORE LOG              AFTER LOG
                             DENSITY     CORR.      DENSITY      CORR.
 DENSITY FIELD CHECK         2.0902     -0.035      2.0948      -0.037

SER # D125        MOD. # 123      SRC. # 0            FLD CAL. # 0




                        DSN AFTER SURVEY CALIBRATE

PERFORMED   10/ 16/ 87     LAST SHOP CALIB    10/ 01/ 87
PROGRAM VERSION V1.87

                 SHOP            FIELD
                             BEFORE      AFTER
     RATIO      54.607       54.564     54.641
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