Schlumberger

DUAL INDUCTION-SFL

COUNTY COLLIER, FL
FIELD BEAR ISLAND
LOCATION SEC. 2-49S-30E
WELL COLLIER CO. 2-8
COMPANY EXXON COMPANY, U.S.A

COMPANY EXXON COMPANY, U.S.A.

EED
RECORDS MGMT

WELL COLLIER COMPANY 2-8

FIELD BEAR ISLAND

COUNTY COLLIER STATE FLORIDA

LOCATION
SL-1040.1'NSL & 1412.1'WEL-
BHL 1852'NSL & 1612'WEL

API SERIAL NO. 04-021-20157
SEC. 2
TWP 49S
RANGE 30E

Other Services:
FDC/CNL/GR
& BHC

FILE #3884

Permanent Datum: GROUND LEVEL ; Elev.: 18.7
Log Measured From RKB; 23.2 Ft. Above Perm. Datum
Drilling Measured From : RKB

Elev.: K.B. 41.9
DP D.F. 39.9
G.L. 18.7

Date	12/08/82	12/15/82	1/09/83	
Run No.	ONE	TWO	THREE	
Depth—Driller	1840	4000	11724	
Depth—Logger (Schl.)	1834	2401	11721	
Btm. Log Interval	1828	2395	11715	
Top Log Interval	248	1824	3999	
Casing—Driller	20@ 248	13-3/8@1825	9⅝"@ 4000	@
Casing—Logger	248	1824	3999	
Bit Size	17½	12¼"	8-¾"	
Type Fluid in Hole	GEL	WATER	LIGNITE	
Dens.	9.0	8.3	9.2	
Visc.	46	-	40	
pH	-	-	10.5	
Fluid Loss	- ml	- ml	6.0 ml	ml
Source of Sample	FLOWLINE	TANK	TANK	
Rm @ Meas. Temp.	4.01@ 89 °F	11.41@ 78 °F	1.01@ 75 °F	@ °F
Rmf @ Meas. Temp.	3.88@ 84 °F	- @ - °F	1.15@ 75 °F	@ °F
Rmc @ Meas. Temp.	4.70@ 84 °F	- @ - °F	1.53@ 75 °F	@ °F
Source: Rmf	M	-	M	
Source: Rmc	M	-	M	
Rm @ BHT	4.095@ 87 °F	9.064@100 °F	.484@ 164°F	@ °F
TIME Circulation Stopped	0430	1830	0330	
TIME Logger on Bottom	0630	2030	1400	
Max. Rec. Temp.	87 °F	100 °F	163 & 164°F	°F
Equip.	8193	8193	8193	
Location	FT. MY	FT. MY	FT. MYERS	
Recorded By	BUCHEL	BUCHEL	BUCHEL	
Witnessed By	SEARS	SEARS	HAWKINS	

SWS-2510-B

FOLD HERE The well name, location and borehole reference data were furnished by the customer.

Run No.	ONE	TWO	THREE	
Service Order No.	242411	242412	242414	
Fluid Level	FULL	FULL	FULL	
Speed F.P.M.	-	-	65	
Salinity ppm. cl	-	-	1100	
EQUIPMENT DATA				
Panel	1257	1257	1145	
Cartridge	1153	1153	1153	
Sonde	545	545	545	
Memorizer Panel	CSU	CSU	CSU	
Centralizer Type	FIN	FIN	FIN	
Stand-off - Inches	1½"	1½"	1½"	
G.R. Panel	1282	1288	1267	
CALIBRATION DATA				
SBR	SEE	SEE	SEE	
ILD Sonde Error	CALIB.	CALIB.	CALIB.	
ILM Sonde Error	SUMMARY	SUMMARY	SUMMARY	
S.E. Set In Hole - Depth	BELOW	BELOW	BELOW	
S.E. Corr. - Hole Size				
G.R. Background				
G.R. Source				
T.C. - Cal.				
LOGGING DATA				
SBR				
ILD Sonde Error Log				
ILM Sonde Error Log				
G.R. Scale per 100 Div.				
G.R. - T.C. Log				

SCALE CHANGES

Type Log	DEPTH	Scale Up Hole	Scale Down Hole

REMARKS

RUN #1 & #2 LOGGED IN
COMBINATION WITH FDC/CNL/GR.

RUN #3: RM = 1.03 @ 80
RMF = 1.11 @ 78
RMC = 1.48 @ 78

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 willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our General Terms and Conditions as set out in our current Price Schedule.

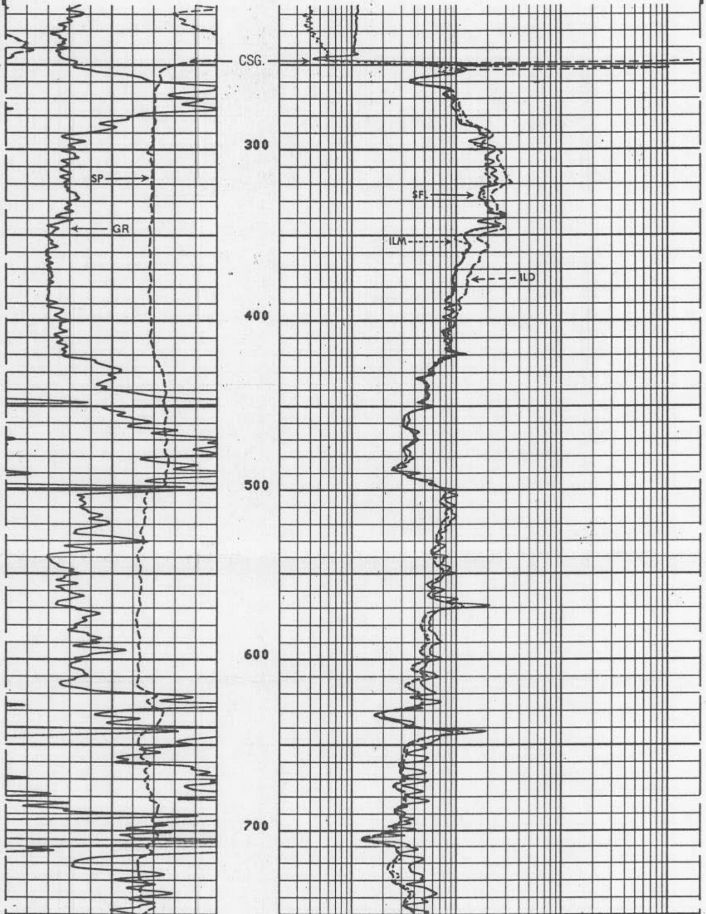
		ILM (OHMM)
		0.2000 — 2000.
GR (GAPI)		ILD (OHMM)
0.0 — 100.0		0.2000 — 2000.
SP (MV)		SFLU(OHMM)
-160.0 — 40.00		0.2000 — 2000.

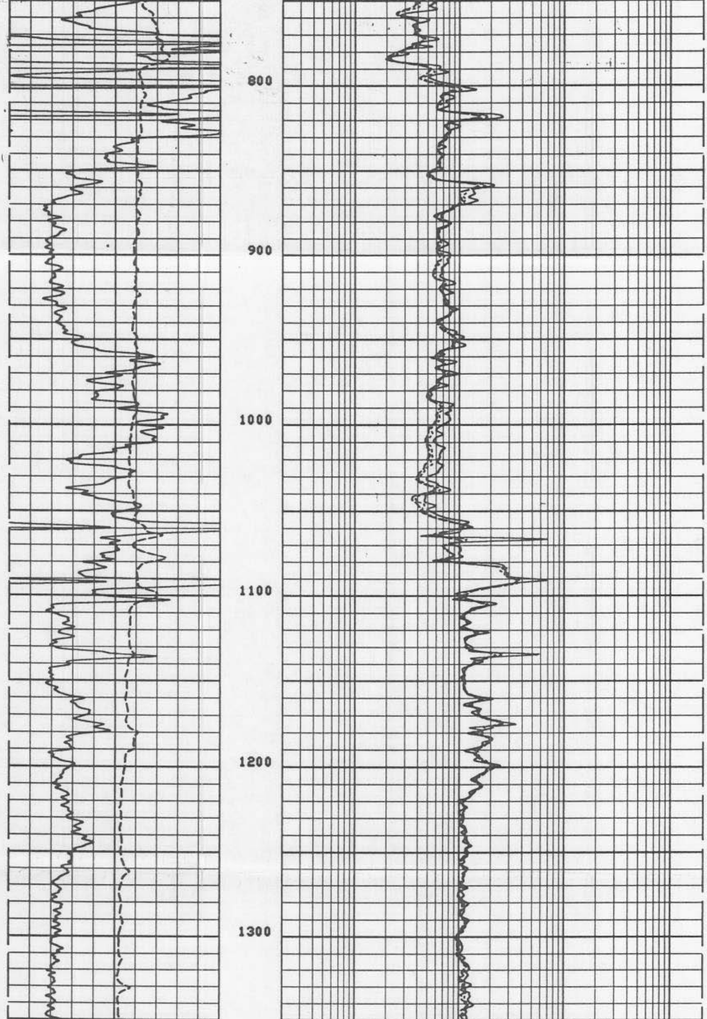
FILE

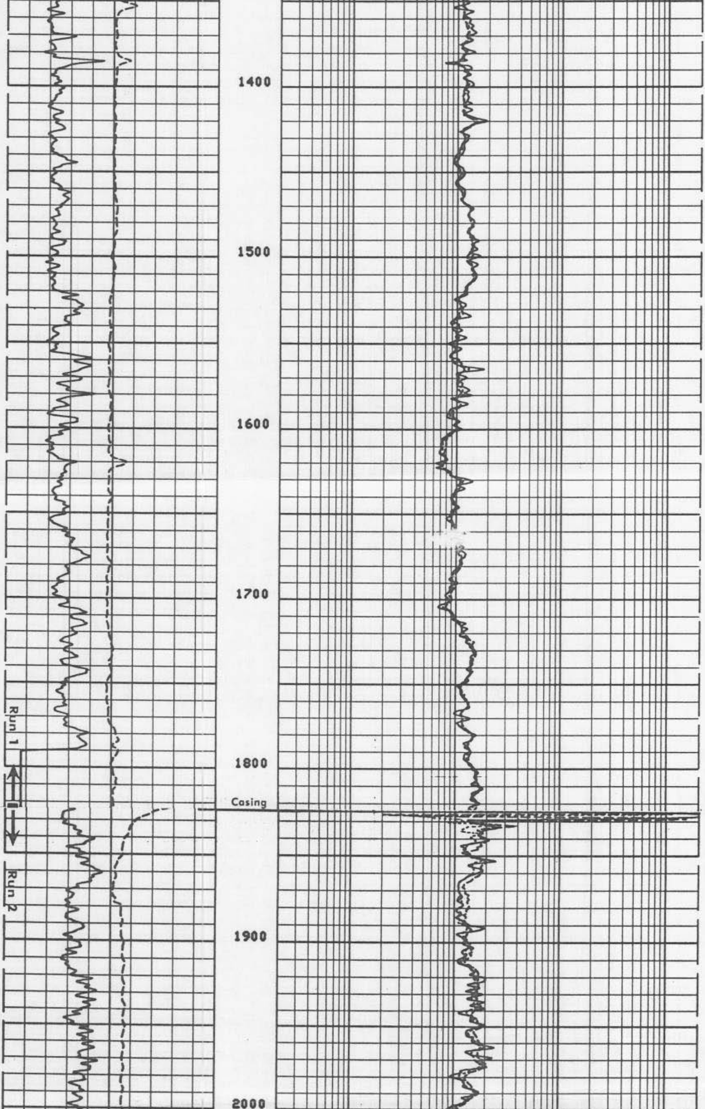
5

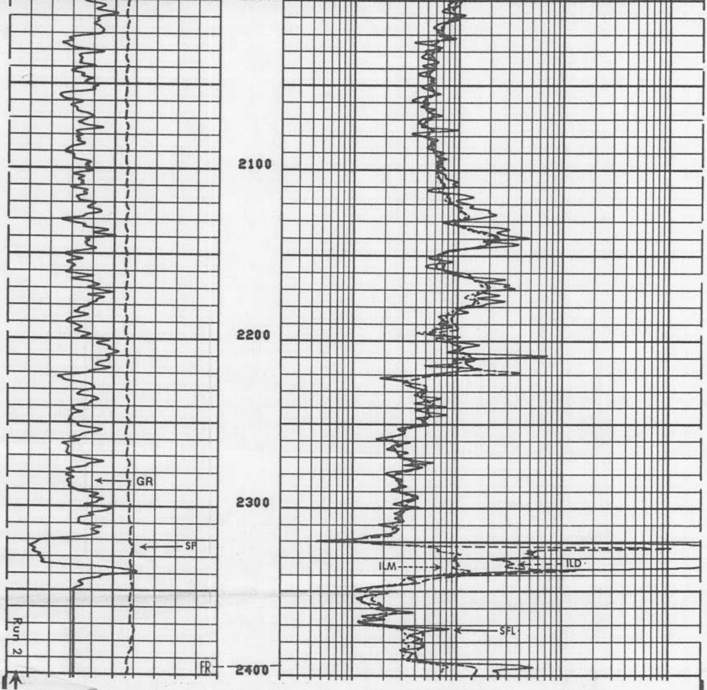
Permit 1060

USGS no. C-1124









021-70

1060

Schlumberger

FDC-CNL-GR

CSU Field Log

COMPANY: EXXON COMPANY USA
WELL: COLLIER COMPANY 2-8
FIELD: BEAR ISLAND
COUNTY: COLLIER
STATE: FLORIDA
NATION: USA
LOCATION: NA
SEC: 2 TWP: 49S RGE: 30E

OTHER SERVICES-
DIL-GR

API SERIAL NO:
NA

PERMANENT DATUM: GL
ELEV. OF PERM. DATUM:
LOG MEASURED FROM: RKB
23.0' ABOVE PERM. DATUM
DRLG. MEASURED FROM: RKB

ELEVATIONS-
KB:
DF:
GL:

PROGRAM
TAPE NO:
20.2
SERVICE
ORDER NO:
242411

DATE: 8 DEC 82
RUN NO: 1

DEPTH-DRILLER: 1840.0'
DEPTH-LOGGER: 1834.0'
BTM. LOG INTERVAL: 1802.0'
TOP LOG INTERVAL: 248.0'

CASING-DRILLER:	248'	
CASING-LOGGER:	248'	
CASING:	20	
WEIGHT:	90.00 LB/F	
BIT SIZE:	26	17.5
DEPTH:	248'	1840'

TYPE FLUID IN HOLE: GEL
DENSITY: 9.0 LB/G
VISCOSITY: 46.0 S
PH:
FLUID LOSS:
SOURCE OF SAMPLE: FLOWLINE
RM: 4.010 OHMM AT 89.0 DF
RMF: 3.880 OHMM AT 84.0 DF
RMC: 4.700 OHMM AT 84.0 DF
SOURCE RMF/RMC: FLOWLINE-M/FLOWLINE-M
RM AT BHT: 4.095 OHM AT 87.0 DF
RMF AT BHT: 3.756 OHM AT 87.0 DF
RMC AT BHT: 4.550 OHM AT 87.0 DF

TIME CIRC. STOPPED: 2HRS
TIME LOGGER ON BTM.: 0630

MAX. REC. TEMP: 87.0 DF

LOGGING UNIT NO: 8193
LOGGING UNIT LOC: FT MYERS
RECORDED BY: BUCHEL
WITNESSED BY: SEARS

REMARKS:

RAN IN COMBO WITH DIL
2-1.5IN SO & BOW SPRING RAN

EQUIPMENT NUMBERS-

IS 545	IC 1153	CNC 652	PGS 83
PGC 416	PDH 1201	GSR 3345	NSR A0501
CNB 301	SFT GCBC	SGT 1282	

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 WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

FILE

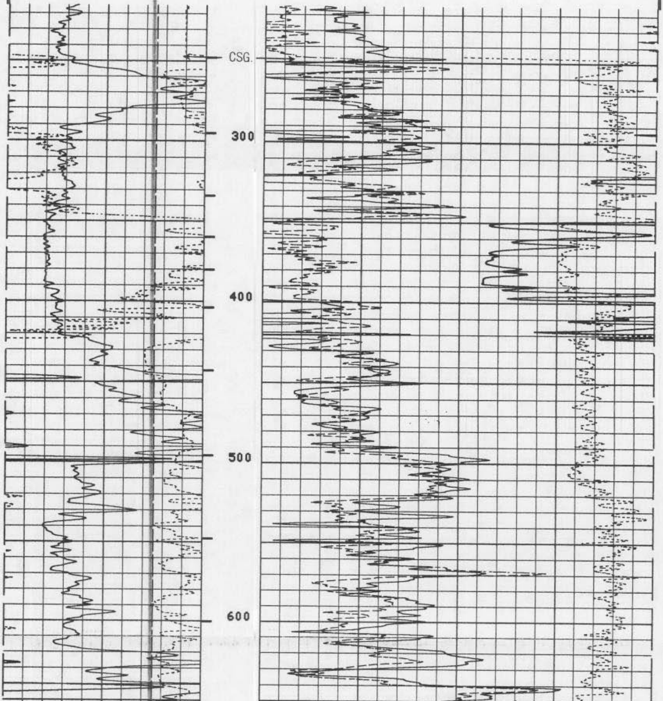
7

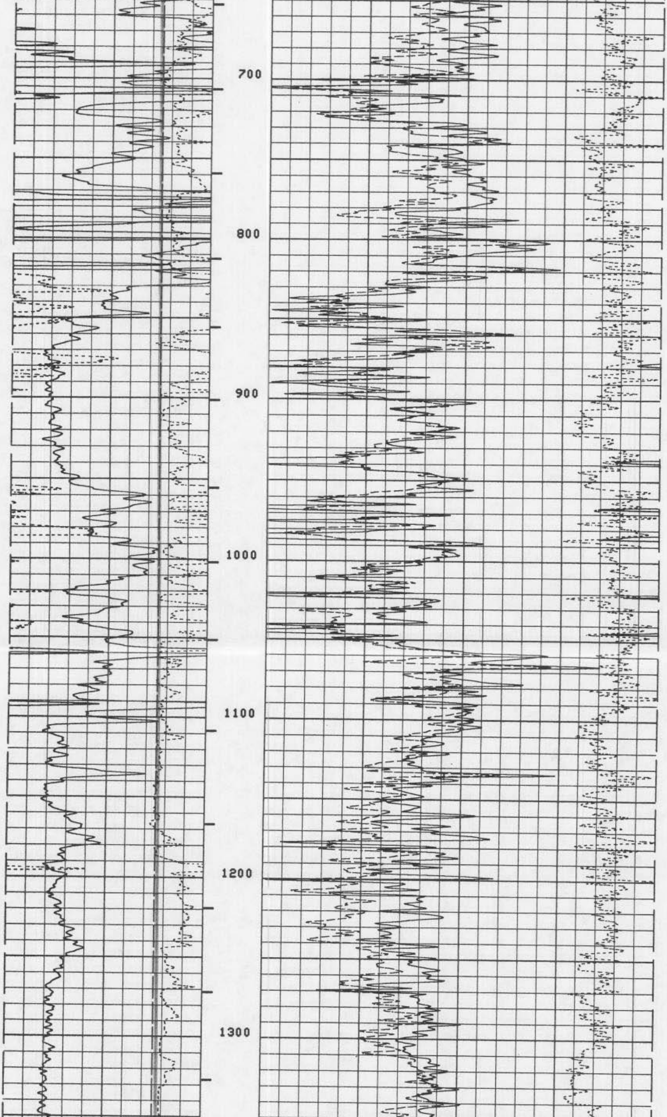
BS (IN)
10.00 20.00
CALI(IN)
10.00 20.00
GR (GAPI)
0.0 100.0

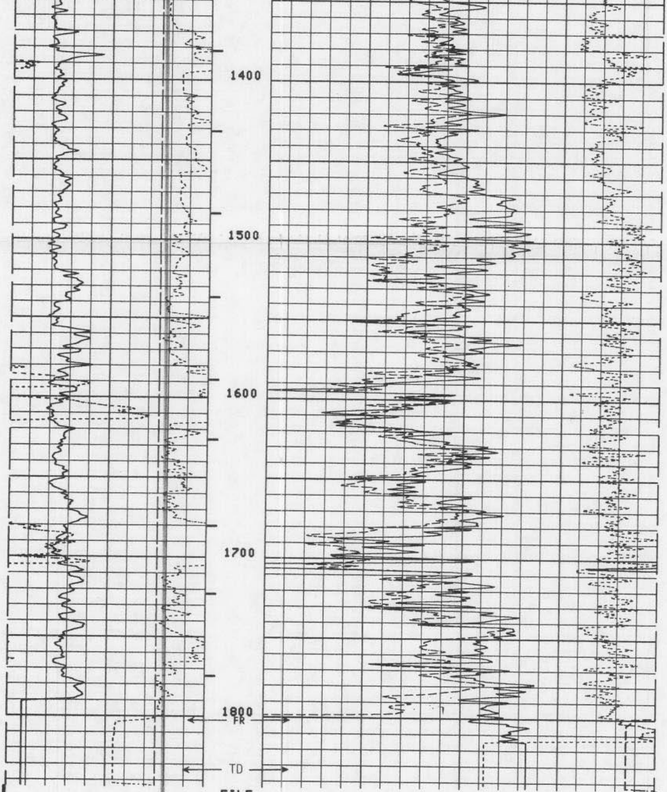
DRHO(G/C3)
-0.250 0.2500
DPHI( )
0.6000 0.0
NPHI( )
0.6000 0.0

FILE

5







FILE

5

BS (IN)
10.00 20.00
CALI(IN)
10.00 20.00
GR (GAPI)
0.0 100.0

DRHO(G/C3)
-0.250 0.2500
DPHI( )
0.6000 0.0
NPHI( )
0.6000 0.0

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NCNL	44.4	FEET	GR	52.9	FEET
FFDC	29.1	FEET	FCNL	44.4	FEET
CALI	29.1	FEET	NFDC	29.1	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NRAT	44.4	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PSNR	2.337		BS	17.50	IN
MATR	LIME		HC	CALI	
MDEN	2.710	G/C3	FD	1.000	G/C3
BHF	WATE		FDCC	ALLO	
SBR	1.000	OHMM	DSEC	4.200	MMHO
BHS	OPEN		MSEC	6.500	MMHO
DO	0.0				

BS (IN) 10.00 20.00

CALI(IN) 10.00 20.00

GR (GAPI) 0.0 100.0

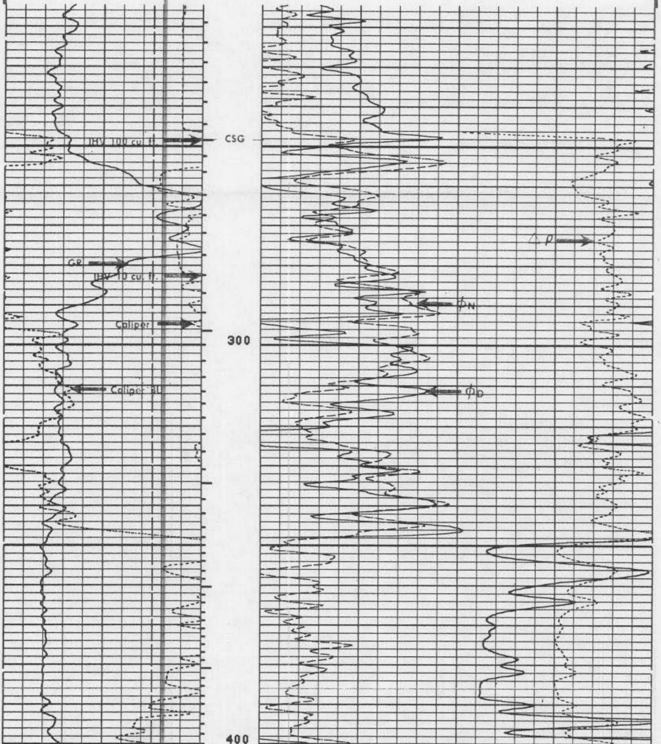
DRHO(G/C3) -0.250 0.2500

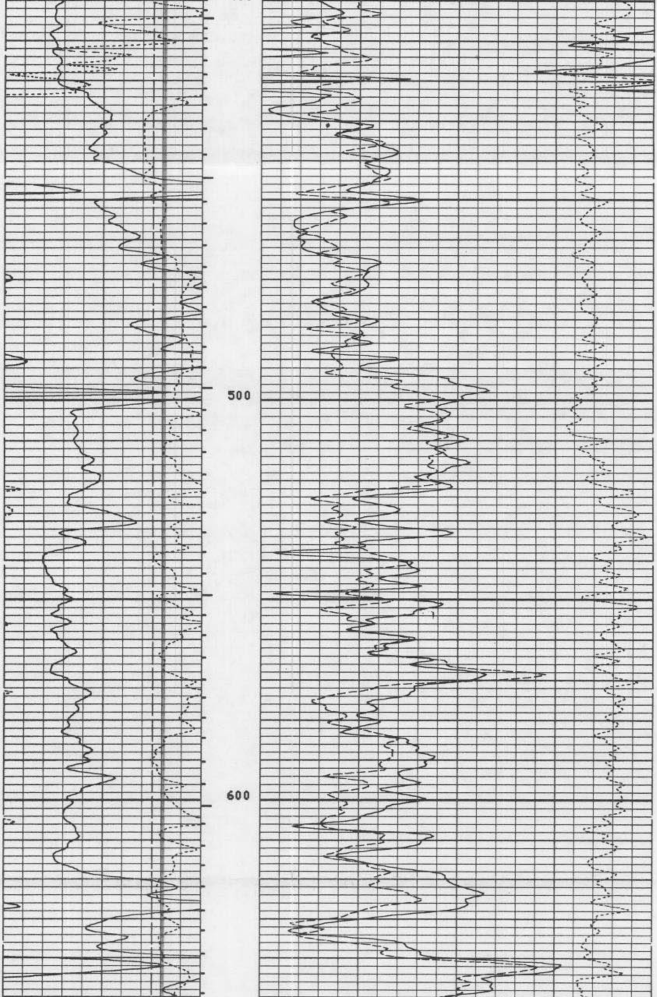
DPHI( ) 0.6000 0.0

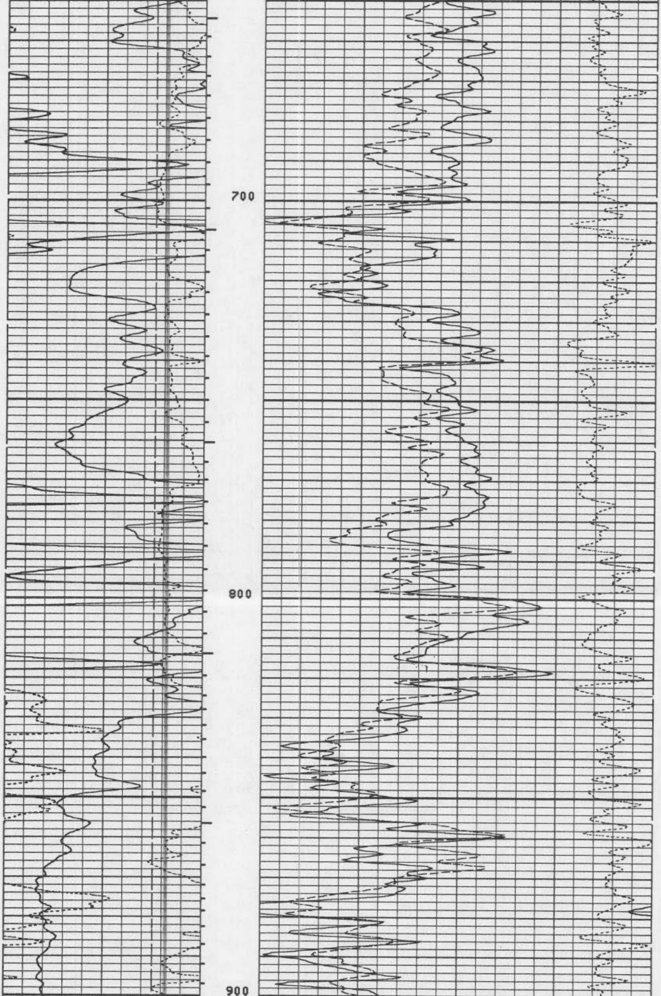
NPHI( ) 0.6000 0.0

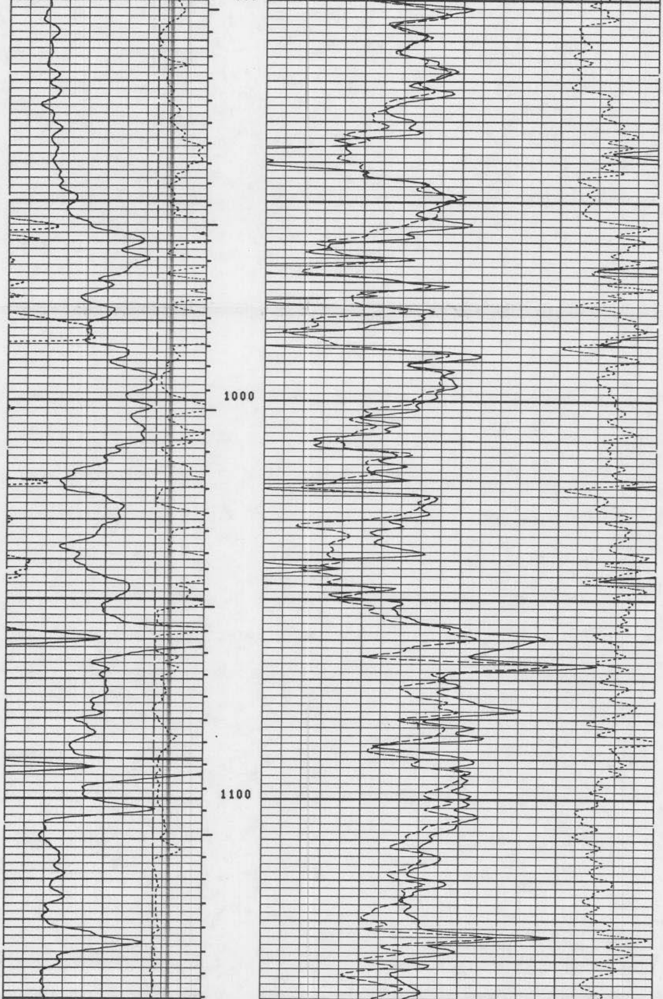
FILE
5

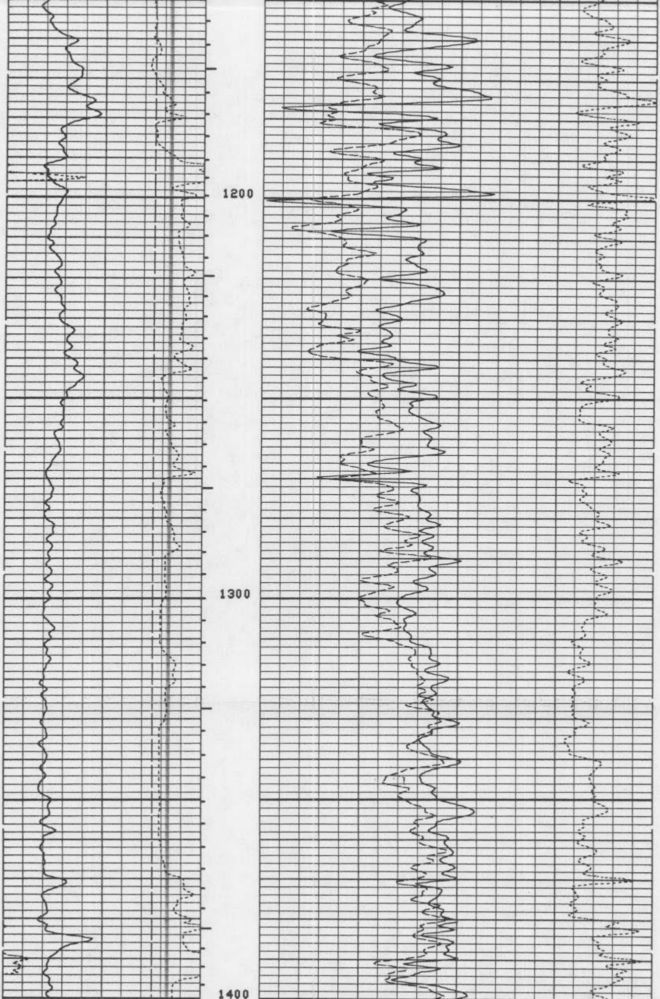
LIMESTONE MAIN LOG

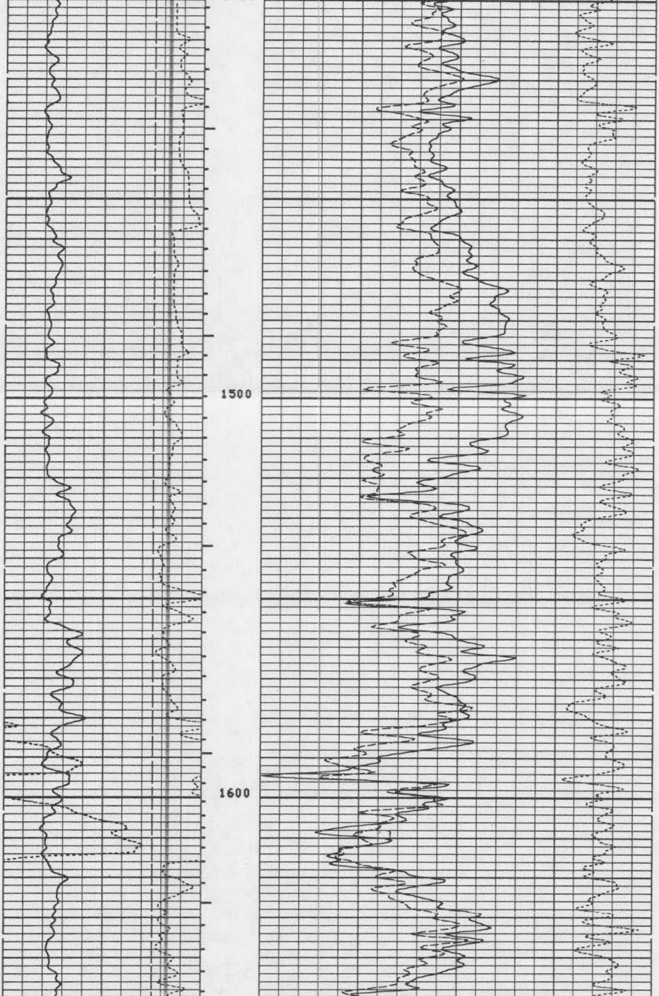


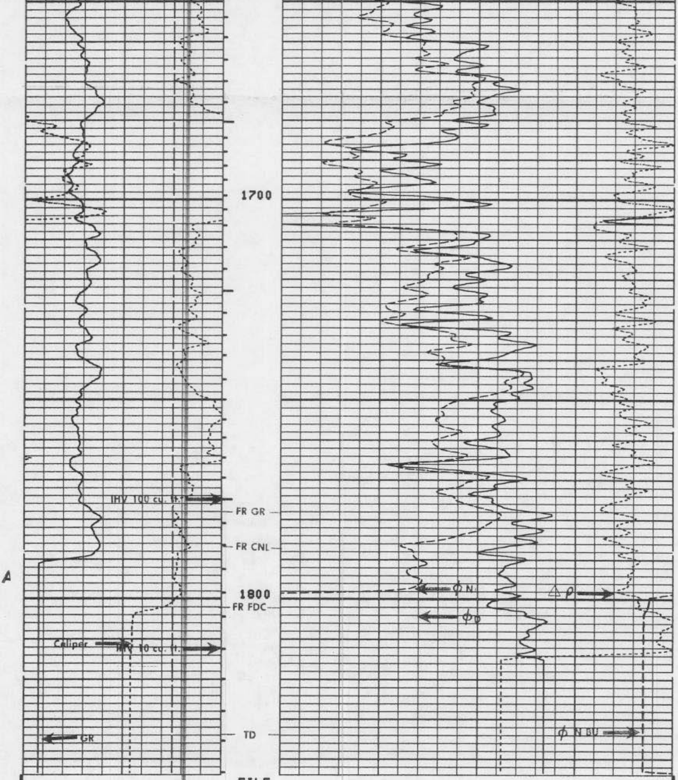












FILE

5

MAIN LOG LIMESTONE

BS (IN)		
10.00		20.00
CALI(IN)		
10.00		20.00
GR (GAPI)		
0.0		100.0

DRHO(G/C3)		
-0.250		0.2500
DPHI( )		
0.6000		0.0
NPHI( )		
0.6000		0.0

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NCNL	44.4	FEET	GR	52.9	FEET
FFDC	29.1	FEET	FCNL	44.4	FEET
CALI	29.1	FEET	NFDC	29.1	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NRAT	44.4	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PSNR	2.337		BS	17.50	IN
MATR	LIME		HC	CALI	
MDEN	2.710	G/C3	FD	1.000	G/C3
BHF	WATE		FDCC	ALLO	
SBR	1.000	OHMM	DSEC	4.200	MMHO
BHS	OPEN		MSEC	6.500	MMHO
DO	0.0				

BS (IN) 10.00 20.00

CALI(IN) 10.00 20.00

GR (GAPI) 0.0 100.0

DRHO(G/C3) -0.250 0.2500

DPHI( ) 0.6000 0.0

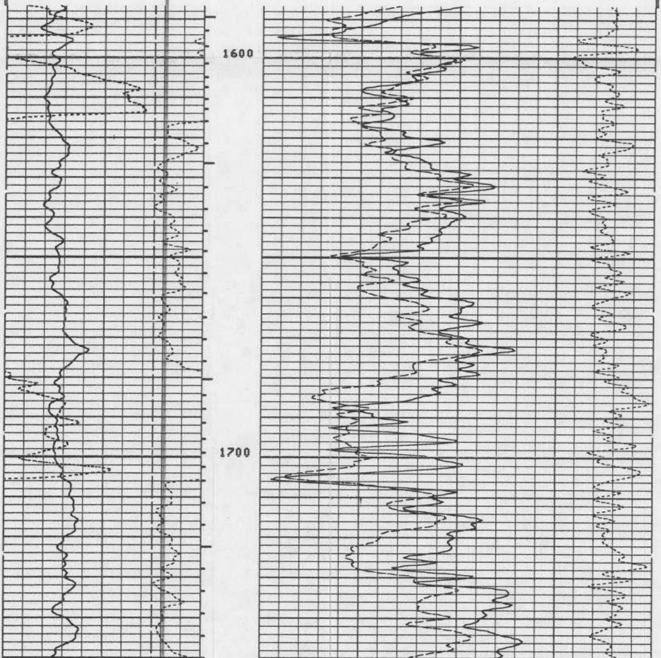
NPHI( ) 0.6000 0.0

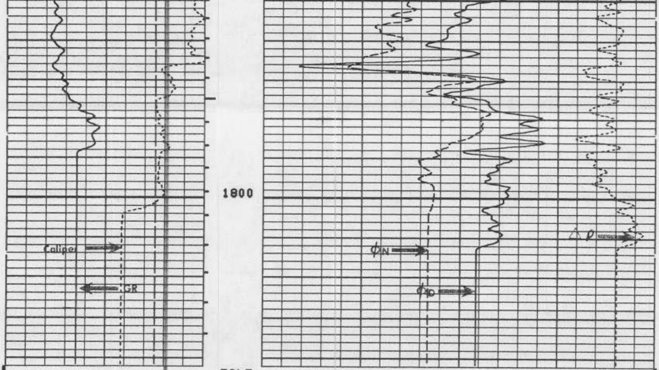
FILE

4

REPEAT SECTION

LIMESTONE





FILE

4

REPEAT SECTION
LIMESTONE

BS (IN)		DRHO(G/C3)
10.00 20.00		-0.250 0.2500
CALI(IN)	DPHI( )	
10.00 20.00	0.6000 0.0	
GR (GAPI)	NPHI( )	
0.0 100.0	0.6000 0.0	

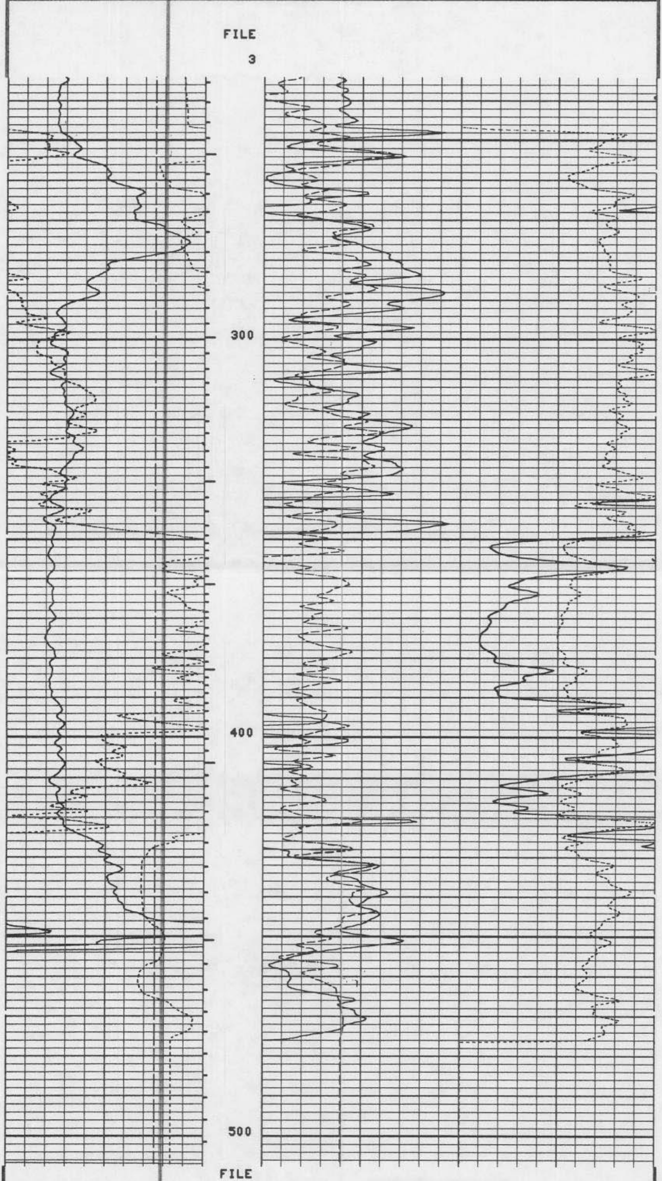
SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NCNL	44.4	FEET	GR	52.9	FEET
FFDC	29.1	FEET	FCNL	44.4	FEET
CALI	29.1	FEET	NFDC	29.1	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NRAT	44.4	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PSNR	2.337		BS	17.50	IN
MATR	LIME		HC	CALI	
MDEN	2.710	G/C3	FD	1.000	G/C3
BHF	WATE		FDCC	ALLO	
SBR	1.000	OHMM	DSEC	4.200	MMHO
BHS	OPEN		MSEC	6.500	MMHO
DO	0.0				

BS (IN)		DRHO(G/C3)
10.00 20.00		-0.250 0.2500
CALI(IN)	DPHI( )	
10.00 20.00	0.6000 0.0	
GR (GAPI)	NPHI( )	
0.0 100.0	0.6000 0.0	



3

REPEAT SECTION
LIMESTONE

BS (IN)	10.00	20.00
CALI(IN)	10.00	20.00
GR (GAPI)	0.0	100.0
DRHO(G/C3)	-0.250	0.2500
DPHI( )	0.6000	0.0
NPHI( )	0.6000	0.0

```
             SENSOR MEASURE POINT TO TENSION REFERENCE POINT

         NCNL  44.4  FEET                       GR    52.9  FEET
         FFDC  29.1  FEET                       FCNL  44.4  FEET
         CALI  29.1  FEET                       NFDC  29.1  FEET
         SFL    3.9  FEET                       ILD    6.9  FEET
         SP      .0  FEET                       ILM    3.3  FEET
         TENS    .0  FEET                       SPAR    .0  FEET
         NRAT  44.4  FEET
```

```
                               PARAMETERS

         NAME  VALUE     UNIT                   NAME  VALUE     UNIT

         PSNR  2.337                            BS    17.50     IN
         MATR  LIME                             HC    CALI
         MDEN  2.710     G/C3                   FD    1.000     G/C3
         BHF   WATE                             FDCC  ALLO
         SBR   1.000     OHMM                   DSEC  4.200     MMHO
         BHS   OPEN                             MSEC  6.500     MMHO
         DO    0.0
```

```
         MATR  LIME                             HC    CALI
         MDEN  2.710     G/C3                   FD    1.000     G/C3
         BHF   WATE                             FDCC  ALLO
         SBR   1.000     OHMM                   DSEC  4.200     MMHO
         BHS   OPEN                             MSEC  6.500     MMHO
         DO    0.0
```

```
              BEFORE SURVEY CALIBRATION SUMMARY

  PERFORMED:      82/12/08
  PROGRAM FILE: ISN    (VERSION    20.2    81/ 1/30)

 DITD              ELECTRONICS CALIBRATION SUMMARY

           MEASURED                     CALIBRATED
         ZERO    PLUS                ZERO       PLUS         UNITS
   ILD    1.6   517.3                 0.0      499.8          MMHO
   ILM    0.8   480.1                 0.0      500.0          MMHO
   SFL    0.1   529.5                 0.0      500.0          MMHO

 ILD  SONDE ERROR CORRECTION :        4.2    MMHO
 ILM  SONDE ERROR CORRECTION :        6.5    MMHO

 SGTE              DETECTOR CALIBRATION SUMMARY

           MEASURED
         BKGD    JIG         CALIBRATED         UNITS
   GR     77     228            165             GAPI
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CNTA                DETECTOR CALIBRATION SUMMARY

               TANK                              JIG
          INPUT  CALIBRATED           MEASURED   CALIBRATED
  NRAT    2.337   2.158                 2.404      2.220

PGTK                DETECTOR CALIBRATION SUMMARY

               BLOCK                             JIG
          INPUT  CALIBRATED           MEASURED   CALIBRATED      UNITS
  FFDC     458      336                  445        327            CPS
  NFDC     810      527                  794        517            CPS

PGTK                CALIPER CALIBRATION SUMMARY

            MEASURED                          CALIBRATED
           SMALL   LARGE                  SMALL      LARGE       UNITS
  CALI     11.0    18.2                   12.0       23.0         IN
                     FILE

                      1


                AFTER SURVEY TOOL CHECK SUMMARY

  PERFORMED:       82/12/08
  PROGRAM FILE:  ISN     (VERSION     20.2      81/ 1/30)

DITD                          TOOL  CHECK

                    ZERO                          PLUS
             BEFORE         AFTER           BEFORE      AFTER      UNITS
   ILD         0.0           0.0             499.8      499.1      MMHO
   ILM         0.0          -0.7             500.0      501.1      MMHO
   SFL         0.0          -0.1             500.0      500.0      MMHO

ILD  SONDE ERROR CORRECTION :             4.2    MMHO
ILM  SONDE ERROR CORRECTION :             6.5    MMHO

CNTA                          TOOL  CHECK

                         JIG
               BEFORE          AFTER
  NRAT         2.220           2.409

  POROSITY CHANGE  (LIME):  0.028

PGTK                          TOOL  CHECK

                         JIG
               BEFORE          AFTER       UNITS
  FFDC          327             328         CPS
  NFDC          517             519         CPS
                         FILE

                          7


                SHOP SUMMARY

  PERFORMED:       82/12/02
  PROGRAM FILE:  SHOP    (VERSION      20.2      81/ 1/30)

DITD                   ELECTRONICS CALIBRATION SUMMARY

                 TEST LOOP CALIBRATION                   TOOL CHECK
           MEASURED          CALIBRATED                  CALIBRATED
         ZERO     PLUS       ZERO        PLUS        ZERO         PLUS   UNITS
   ILD   -2.6     501.3       0.0        500.0        0.0         502.2  MMHO
   ILM   -6.8     467.8       0.0        500.0        0.0         503.0  MMHO
ILD  SONDE ERROR CORRECTION :             4.2    MMHO
ILM  SONDE ERROR CORRECTION :             6.5    MMHO

                       (IS:545   , IC:1153 )

CNTA                   DETECTOR CALIBRATION SUMMARY

                TANK                          JIG
       MEASURED  CALIBRATED          MEASURED   CALIBRATED

  NRAT    2.337       2.158             2.365        2.184

                      (CNC:652   , CNB:301   )

PGTK                   DETECTOR CALIBRATION SUMMARY

                BLOCK                         JIG
       MEASURED   CALIBRATED         MEASURED   CALIBRATED      UNITS

  FFDC    458          337              440          323          CPS
  NFDC    810          528              793          516          CPS

          (PGS:83     , PDH:1201  , GSR:3345  , GCBC  :GCBC  )
                        FILE

                         14
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021-70

1060

Schlumberger

FDC-CNL-GR

CSU Field Log

COMPANY: EXXON COMPANY USA

WELL: COLLIER COMPANY 2-8

FIELD: BEAR ISLAND
COUNTY: COLLIER
STATE: FLORIDA
NATION: USA
LOCATION: SL-1040.1 NSL & 1412.1 WEL
BHL-1850 NSL & 1380 WEL
SEC: 2 TWP: 49S RGE: 30E

OTHER SERVICES-
DITD-GR

API SERIAL NO:
NA

PERMANENT DATUM: GL
ELEV. OF PERM. DATUM: 18.7'
LOG MEASURED FROM: RKB
23.2' ABOVE PERM. DATUM
DRLG. MEASURED FROM: RKB

ELEVATIONS-
KB: 41.9'
DF: 39.9'
GL: 18.7'

PROGRAM
TAPE NO:
20.2
SERVICE
ORDER NO:
242412

DATE: 15 DEC 82
RUN NO: 2

DEPTH-DRILLER: 4000.0'
DEPTH-LOGGER: 2401.0'
BTM. LOG INTERVAL: 2369.0'
TOP LOG INTERVAL: 1824.0'

CASING-DRILLER:	248'	1825'	
CASING-LOGGER:	248'	1824'	
CASING:	20	13.375	
WEIGHT:	90.00 LB/F	48.00 LB/F	
BIT SIZE:	26	17.5	12.25
DEPTH:	248'	1834'	4000'

TYPE FLUID IN HOLE: WATER
DENSITY: 8.3 LB/G
VISCOSITY:
PH:
FLUID LOSS:
SOURCE OF SAMPLE: TANK
RM: 11.41 OHMM AT 78.0 DF
RMF: AT
RMC: AT
SOURCE RMF/RMC: NONE/NONE
RM AT BHT: 9.064 OHM AT 100. DF
RMF AT BHT: AT 100. DF
RMC AT BHT: AT 100. DF

TIME CIRC. STOPPED: 2HRS
TIME LOGGER ON BTM.: 2030

MAX. REC. TEMP: 100.0 DF

LOGGING UNIT NO: 8193
LOGGING UNIT LOC: FT MYERS
RECORDED BY: BUCHEL
WITNESSED BY: SEARS

REMARKS:

NO MUD SAMPLE / NO MUD RETURNS
RAN IN COMBO WITH DUAL
2-1.5IN SO & BOW SPRING RAN
LOGGED FROM 2400 ON CUSTOMER REQUEST

EQUIPMENT NUMBERS-

IS 545	IC 1153	IEM 1145	NLM 1257
PGC 1009	SGT 1288	CNC 1265	CNB 301
NSR A0501	PGS 57	PDH 1172	GSR 3345

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 WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

FILE

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                  AFTER SURVEY TOOL CHECK SUMMARY


   PERFORMED:     82/12/15
   PROGRAM FILE: ISN    (VERSION    20.2    81/ 1/30)

 DITD                       TOOL  CHECK

                   ZERO                              PLUS
            BEFORE        AFTER            BEFORE      AFTER      UNITS
    ILD       0.0           0.7            499.8       499.5      MMHO
    ILM       0.0           0.5            500.0       499.1      MMHO
    SFL       0.0           0.2            500.0       500.4      MMHO

 ILD  SONDE ERROR CORRECTION :            4.2    MMHO
 ILM  SONDE ERROR CORRECTION :            6.5    MMHO

 CNTA                       TOOL  CHECK

                    JIG
              BEFORE      AFTER
   NRAT       2.204       2.202

   POROSITY CHANGE  (LIME):  0.000

 PGTK                       TOOL  CHECK

                    JIG
              BEFORE      AFTER      UNITS
   FFDC       320         320        CPS
   NFDC       515         518        CPS
                   FILE

                    12
```
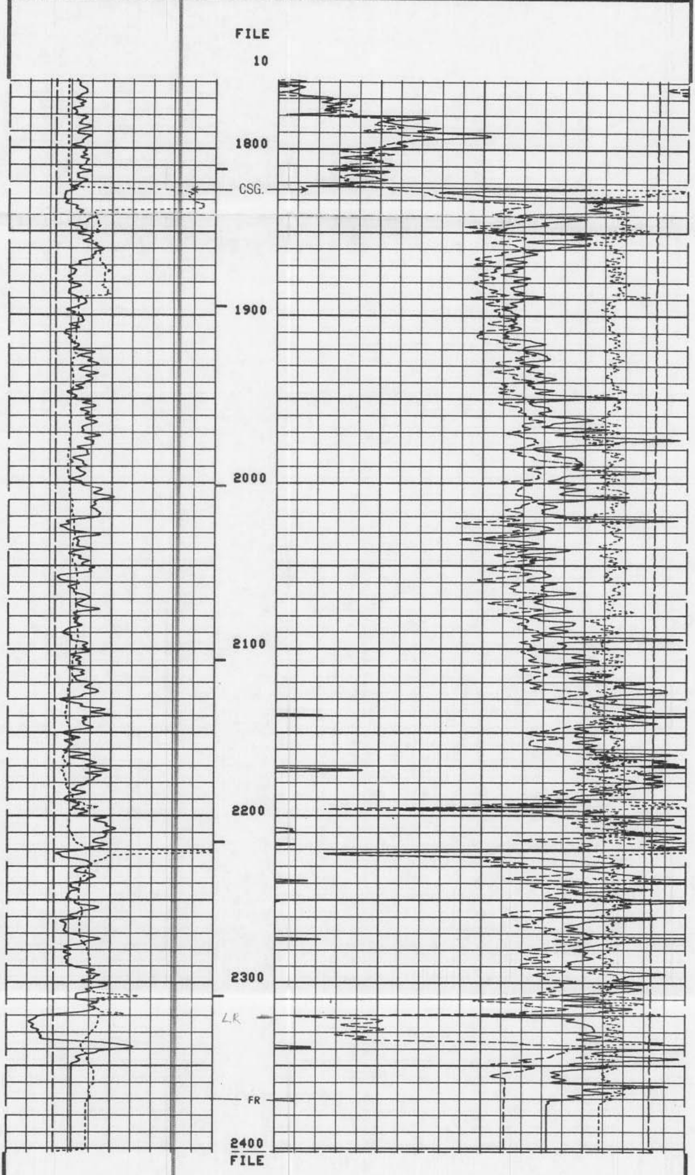

BS (IN)		TENS(LB)
10.00 20.00		11000. 1000.
CALI(IN)		DRHO(G/C3)
10.00 20.00	DPHI( )	-0.250 0.2500
GR (GAPI)	0.6000 0.0	
0.0 100.0	NPHI( )	
	0.6000 0.0	



10

TENS(LB)	11000.	1000.
DRHO(G/C3)	-0.250	0.2500
BS (IN)	10.00	20.00
CALI(IN)	10.00	20.00
DPHI( )	0.6000	0.0
GR (GAPI)	0.0	100.0
NPHI( )	0.6000	0.0

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NCNL	44.4	FEET	GR	52.9	FEET
FFDC	29.1	FEET	FCNL	44.4	FEET
CALI	29.1	FEET	NFDC	29.1	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NRAT	44.4	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PSNR	2.325		BS	12.25	IN
MATR	LIME		HC	CALI	
MDEN	2.710	G/C3	FD	1.000	G/C3
BHF	WATE		FDCC	ALLO	
SBR	1.000	OHMM	DSEC	4.200	MMHO
BHS	OPEN		MSEC	6.500	MMHO
DO	0.0				

TENS(LB)	11000.	1000.
DRHO(G/C3)	-0.250	0.2500
BS (IN)	10.00	20.00
CALI(IN)	10.00	20.00
DPHI( )	0.6000	0.0
GR (GAPI)	0.0	100.0
NPHI( )	0.6000	0.0

FILE

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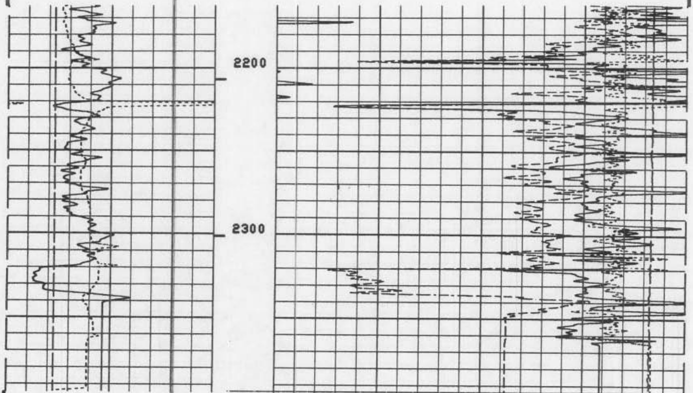


FILE

9

BS (IN)	10.00	20.00
CALI(IN)	10.00	20.00
GR (GAPI)	0.0	100.0
TENS(LB)	11000.	1000.
DRHO(G/C3)	-0.250	0.2500
DPHI( )	0.6000	0.0
NPHI( )	0.6000	0.0

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NCNL	44.4	FEET	GR	52.9	FEET
FFDC	29.1	FEET	FCNL	44.4	FEET
CALI	29.1	FEET	NFDC	29.1	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NRAT	44.4	FEET			

PARAMETERS

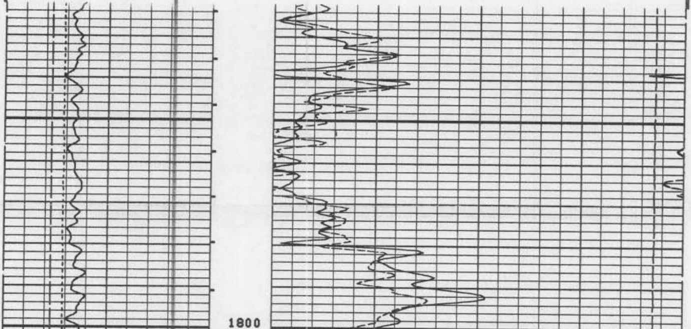
NAME	VALUE	UNIT	NAME	VALUE	UNIT
PSNR	2.325		BS	12.25	IN
MATR	LIME		HC	CALI	
MDEN	2.710	G/C3	FD	1.000	G/C3
BHF	WATE		FDCC	ALLO	
SBR	1.000	OHMM	DSEC	4.200	MMHO
BHS	OPEN		MSEC	6.500	MMHO
DO	0.0				

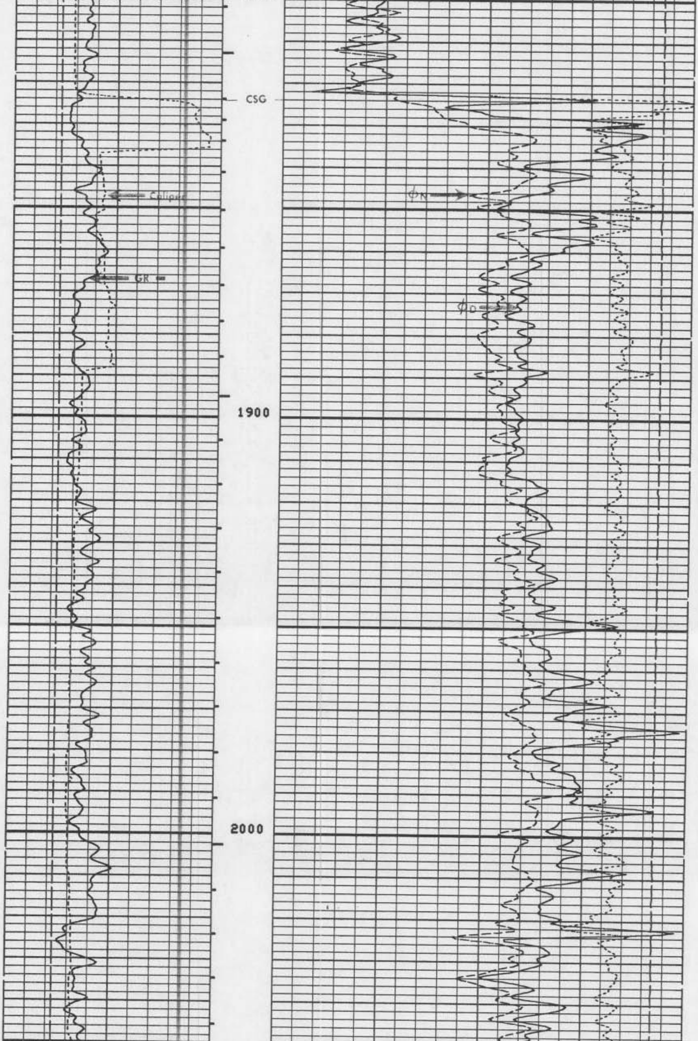
BS (IN)	10.00	20.00
CALI(IN)	10.00	20.00
GR (GAPI)	0.0	100.0
TENS(LB)	11000.	1000.
DRHO(G/C3)	-0.250	0.2500
DPHI( )	0.6000	0.0
NPHI( )	0.6000	0.0

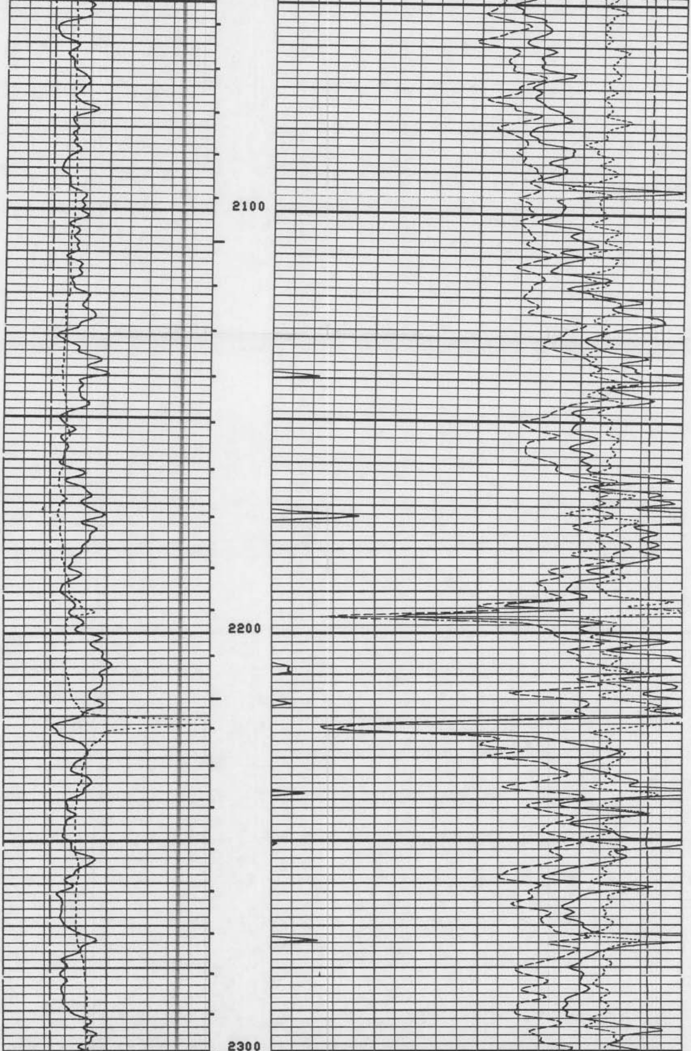
FILE

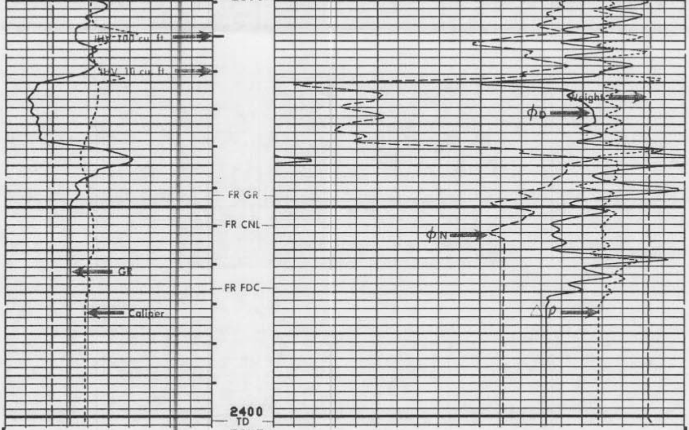
10

LIMESTONE **MAIN LOG**









FILE

10

MAIN LOG LIMESTONE

BS (IN)
10.00 20.00
CALI(IN)
10.00 20.00
GR (GAPI)
0.0 100.0

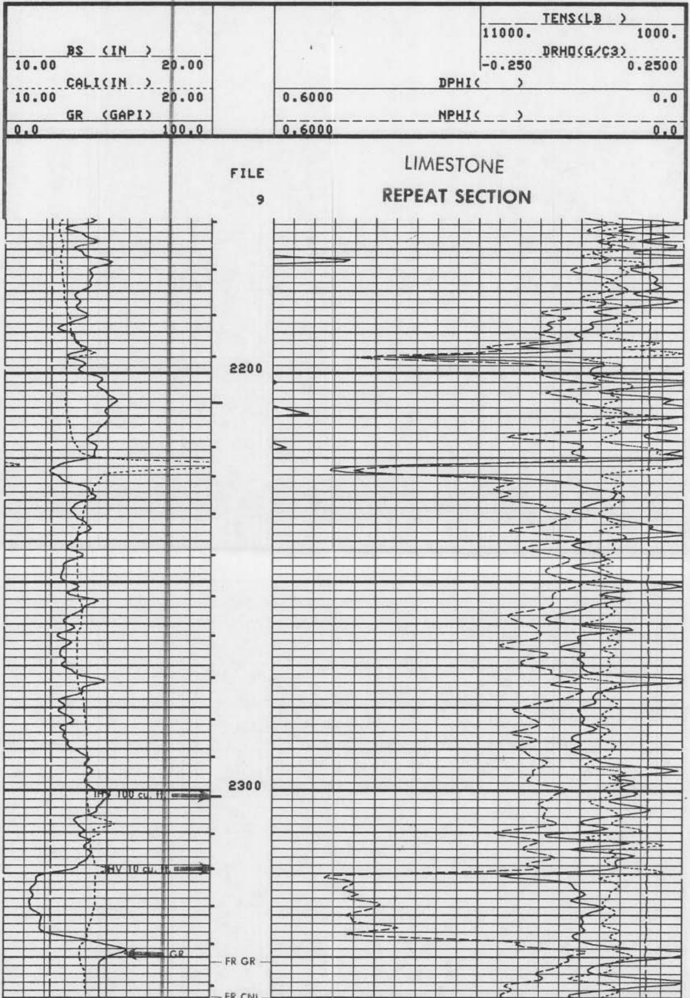
TENS(LB)
11000. 1000.
DRHO(G/C3)
-0.250 0.2500
DPHI( )
0.6000 0.0
NPHI( )
0.6000 0.0

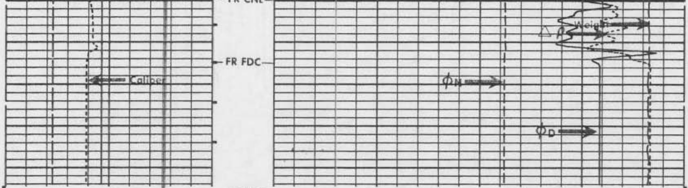
SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NCNL	44.4	FEET	GR	52.9	FEET
FFDC	29.1	FEET	FCNL	44.4	FEET
CALI	29.1	FEET	NFDC	29.1	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NRAT	44.4	FEET			

PARAMETERS

NAME	VALUE	UNIT	NAME	VALUE	UNIT
PSNR	2.325		BS	12.25	IN
MATR	LIME		HC	CALI	
MDEN	2.710	G/C3	FD	1.000	G/C3
BHF	WATE		FDCC	ALLO	
SBR	1.000	OHMM	DSEC	4.200	MMHO
BHS	OPEN		MSEC	6.500	MMHO
DO	0.0				





FILE
— TD —
9

REPEAT SECTION

TENS(LB)	11000.	1000.
DRHO(G/C3)	-0.250	0.2500
BS (IN)	10.00	20.00
CALI(IN)	10.00	20.00
DPHI( )	0.6000	0.0
GR (GAPI)	0.0	100.0
NPHI( )	0.6000	0.0

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

NCNL	44.4	FEET	GR	52.9	FEET
FFDC	29.1	FEET	FCNL	44.4	FEET
CALI	29.1	FEET	NFDC	29.1	FEET
SFL	3.9	FEET	ILD	6.9	FEET
SP	.0	FEET	ILM	3.3	FEET
TENS	.0	FEET	SPAR	.0	FEET
NRAT	44.4	FEET			

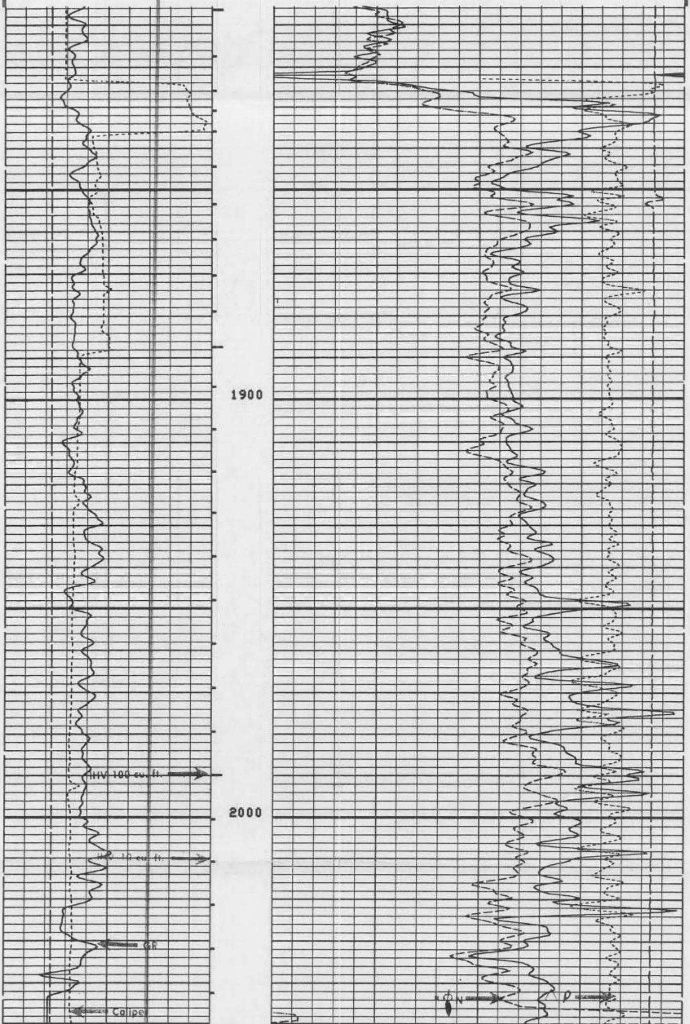
PARAMETERS

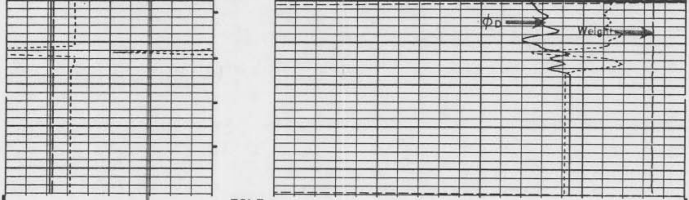
NAME	VALUE	UNIT	NAME	VALUE	UNIT
PSNR	2.325		BS	12.25	IN
MATR	LIME		HC	CALI	
MDEN	2.710	G/C3	FD	1.000	G/C3
BHF	WATE		FDCC	ALLO	
SBR	1.000	OHMM	DSEC	4.200	MMHO
BHS	OPEN		MSEC	6.500	MMHO
DO	0.0				

TENS(LB)	11000.	1000.
DRHO(G/C3)	-0.250	0.2500
BS (IN)	10.00	20.00
CALI(IN)	10.00	20.00
DPHI( )	0.6000	0.0
GR (GAPI)	0.0	100.0
NPHI( )	0.6000	0.0

FILE
8

LIMESTONE
REPEAT SECTION





FILE

8

REPEAT SECTION

```
                                                                TENS(LB  )
                                                          11000.            1000.
     BS   (IN   )                                                DRHO(G/C3)
10.00           20.00                                     -0.250           0.2500
     CALI(IN   )                                      DPHI(     )
10.00           20.00          0.6000                                         0.0
     GR   (GAPI)                                      NPHI(     )
0.0            100.0           0.6000                                         0.0
```

```
          SENSOR MEASURE POINT TO TENSION REFERENCE POINT

        NCNL  44.4  FEET                          GR    52.9  FEET
        FFDC  29.1  FEET                          FCNL  44.4  FEET
        CALI  29.1  FEET                          NFDC  29.1  FEET
        SFL    3.9  FEET                          ILD    6.9  FEET
        SP      .0  FEET                          ILM    3.3  FEET
        TENS    .0  FEET                          SPAR    .0  FEET
        NRAT  44.4  FEET
```

```
                              PARAMETERS

        NAME  VALUE    UNIT                       NAME  VALUE    UNIT

        PSNR  2.325                               BS    12.25    IN
        MATR  LIME                                HC    CALI
        MDEN  2.710    G/C3                       FD    1.000    G/C3
        BHF   WATE                                FDCC  ALLO
        SBR   1.000    OHMM                       DSEC  4.200    MMHO
        BHS   OPEN                                MSEC  6.500    MMHO
        DO    0.0
```

```
              BEFORE SURVEY CALIBRATION SUMMARY

   PERFORMED:        82/12/15
   PROGRAM FILE: ISN     (VERSION    20.2    81/ 1/30)

 DITD                ELECTRONICS CALIBRATION SUMMARY

              MEASURED                       CALIBRATED
            ZERO    PLUS                  ZERO       PLUS          UNITS
   ILD       1.6    515.5                  0.0       499.8          MMHO
   ILM       0.1    480.9                  0.0       500.0          MMHO
   SFL       0.2    529.5                  0.0       500.0          MMHO

 ILD   SONDE ERROR CORRECTION :          4.2    MMHO
 ILM   SONDE ERROR CORRECTION :          6.5    MMHO

 SGTE                DETECTOR CALIBRATION SUMMARY

              MEASURED
            BKGD     JIG          CALIBRATED          UNITS
    GR      123      275              165             GAPI

 CNTA                DETECTOR CALIBRATION SUMMARY
```

```
                 TANK                                 JIG
           INPUT  CALIBRATED          MEASURED   CALIBRATED
   NRAT    2.325    2.158              2.375       2.204

 PGTK                  DETECTOR CALIBRATION SUMMARY

                 BLOCK                                JIG
           INPUT  CALIBRATED          MEASURED   CALIBRATED       UNITS
   FFDC     453     337                 431         320            CPS
   NFDC     731     528                 713         515            CPS

 PGTK                  CALIPER CALIBRATION SUMMARY

             MEASURED                         CALIBRATED
           SMALL    LARGE                  SMALL      LARGE       UNITS
   CALI    11.1     15.7                   12.0       20.0         IN
                      FILE

                         2


                 SHOP SUMMARY


   PERFORMED:       82/12/04
   PROGRAM FILE: SHOP    (VERSION     20.2     81/ 1/30)

 CNTA                  DETECTOR CALIBRATION SUMMARY

               TANK                               JIG
       MEASURED  CALIBRATED       MEASURED   CALIBRATED

  NRAT    2.325      2.158           2.375        2.204

                      (CNC:1265 , CNB:301  )

 PGTK                  DETECTOR CALIBRATION SUMMARY

               BLOCK                              JIG
       MEASURED   CALIBRATED      MEASURED    CALIBRATED       UNITS

  FFDC    453         337            429          319           CPS
  NFDC    731         528            715          516           CPS

         (PGS:57    , PDH:1172 , GSR:3345 , GCBC :GCBC )
                      FILE
```

SENSOR MEASURE POINT TO TENSION REFERENCE POINT

ILD	6.9	FEET	GR	30.4	FEET
ILM	3.3	FEET	SFL	3.9	FEET
SPAR	.0	FEET	SP	.0	FEET
TENS	.0	FEET			

PARAMETERS

SESE SENW

021-70

NAME	VALUE	UNIT	NAME	VALUE	UNIT
DSEC	4.300	MMHO	BS	8.750	IN
MSEC	6.100	MMHO	SBR	1.000	OHMM
DO	0.0		BHS	OPEN	

26°14.46 81°1736

x403844 y695221

GR (GAPI)
0.0 100.0
SP (MV)
-160.0 40.00

ILM (OHMM)
0.2000 2000.
ILD (OHMM)
0.2000 2000.
SFLU(OHMM)
0.2000 2000.

Permit no. 1060

USGS no. C-1124

FILE
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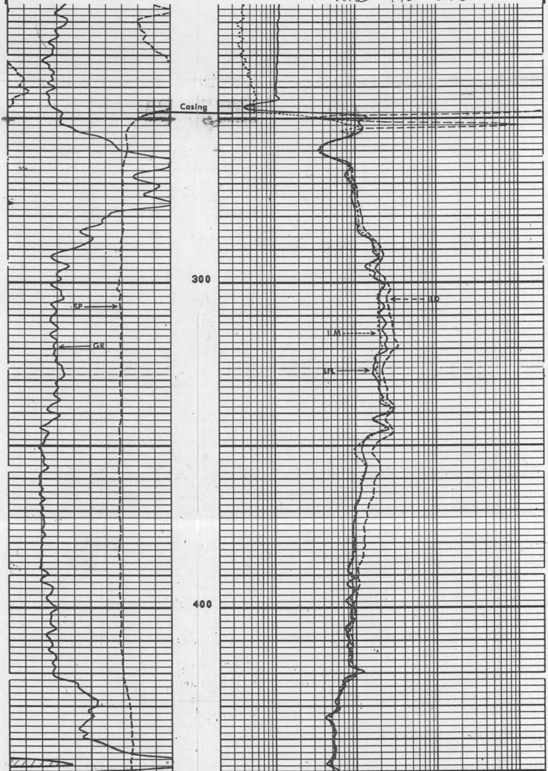
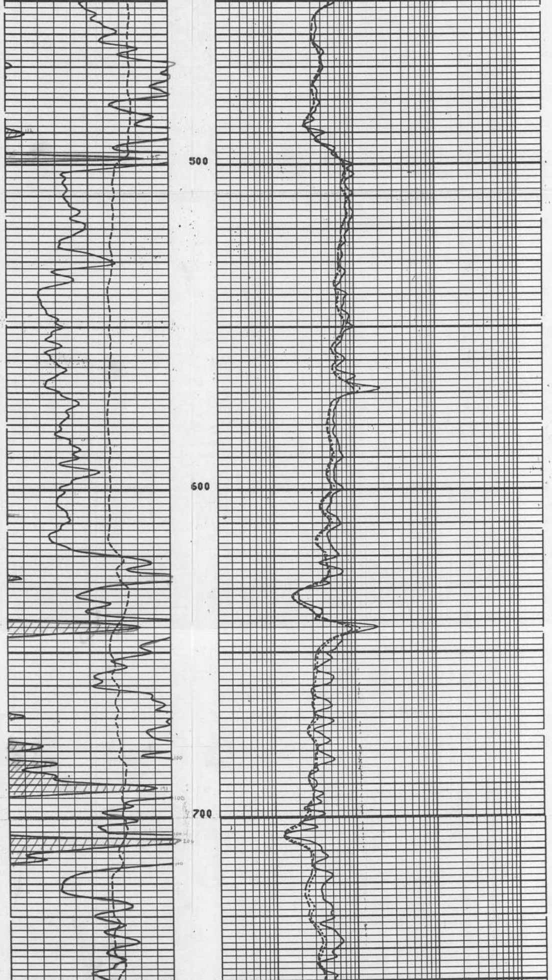
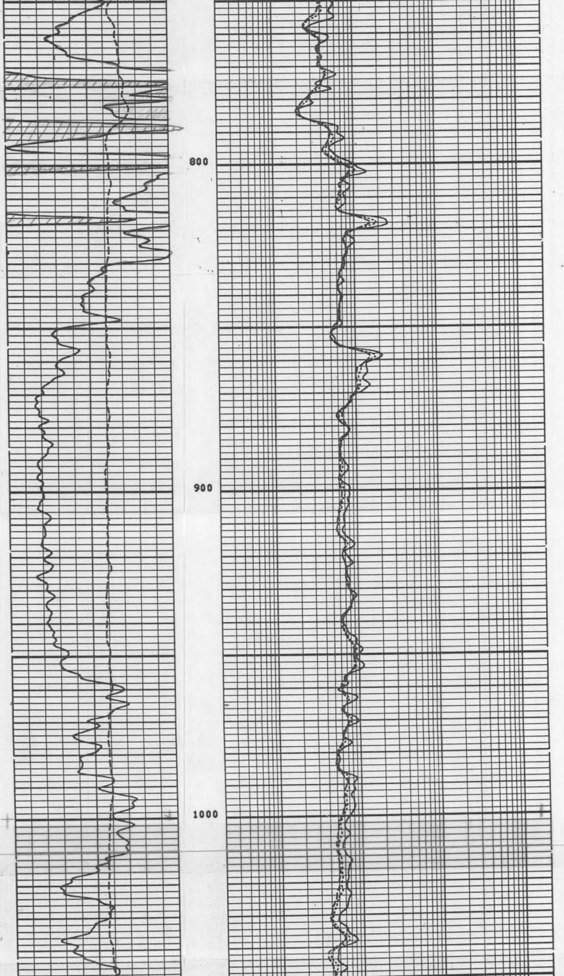
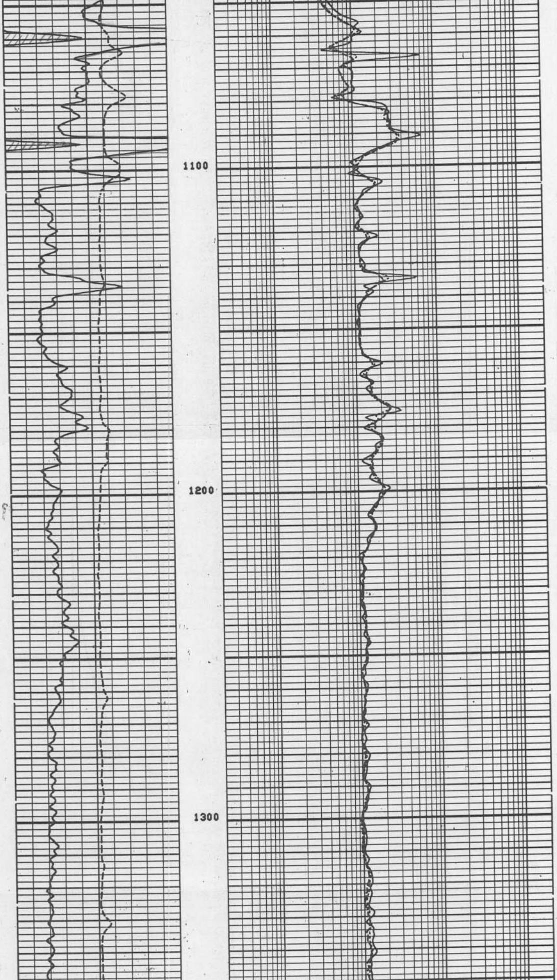
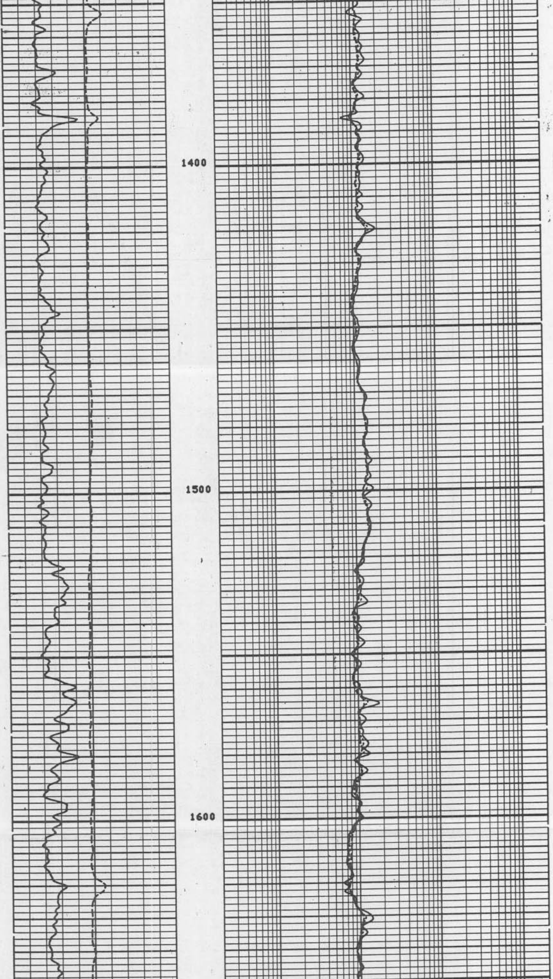
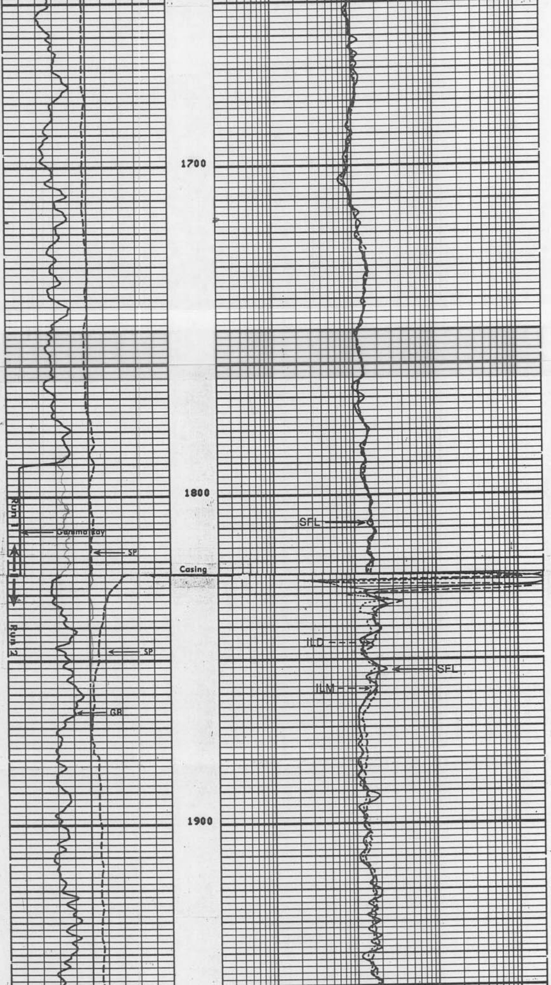
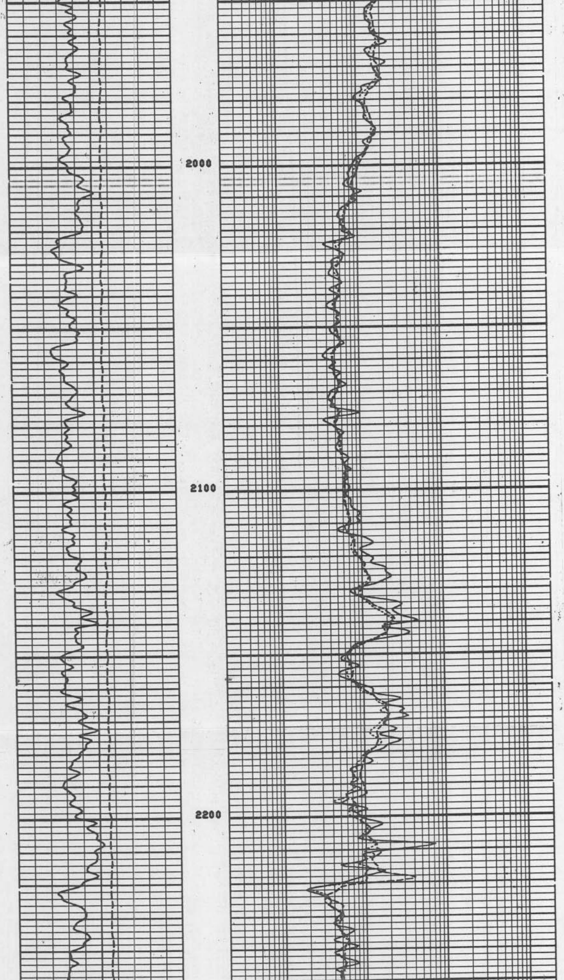
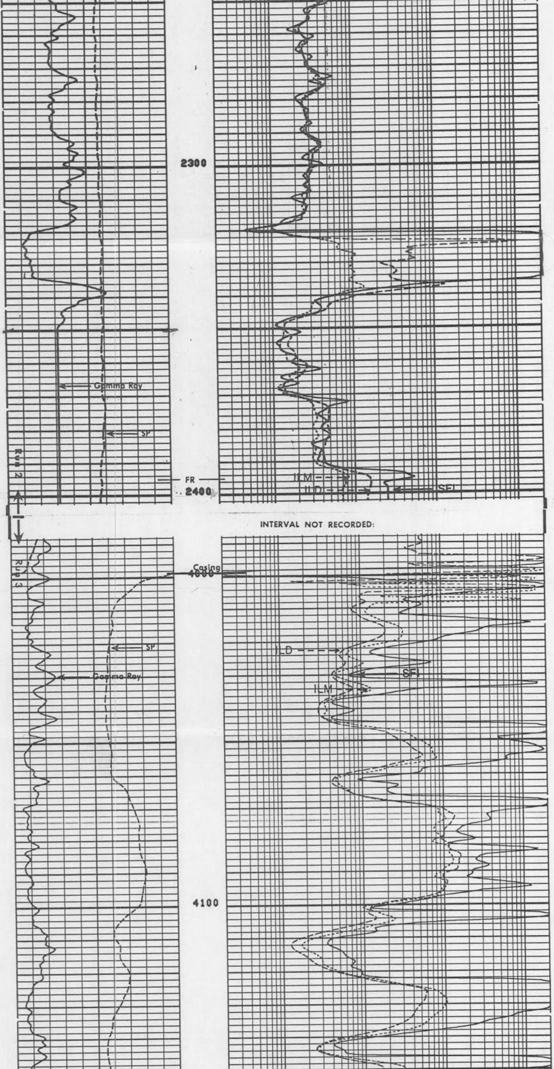
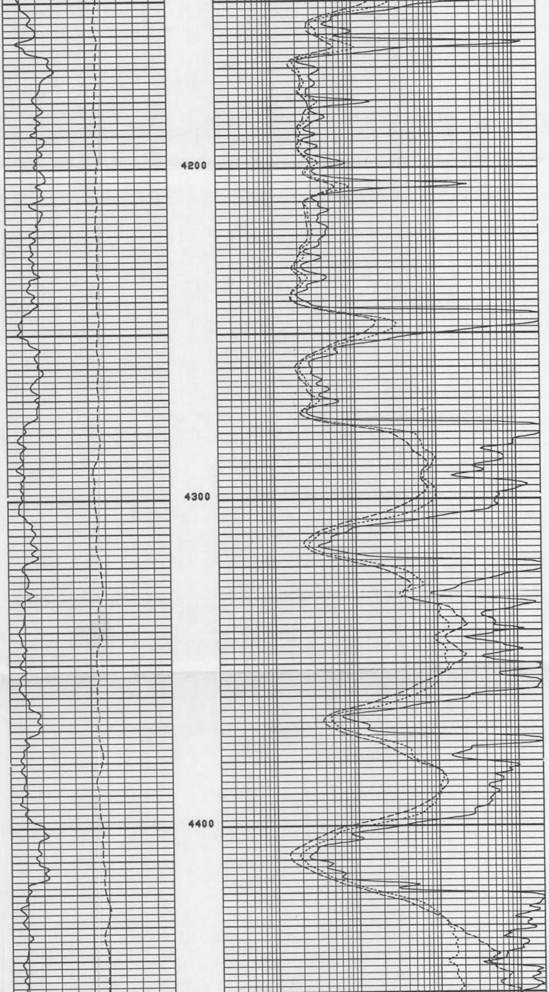
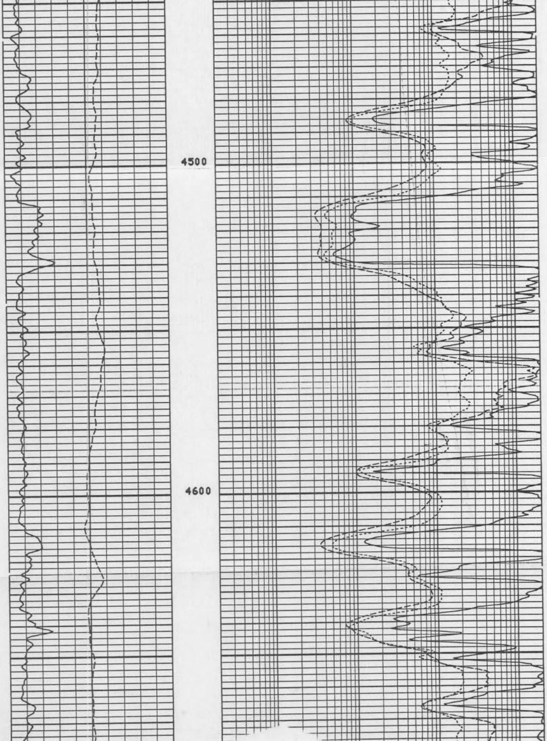
Exxon MILES CITY # 221

Collier Company 2-8
Sec.2 - 49S - 30E