FORM 925322 REV (8-80)

Western Atlas International
Atlas Wireline Services

Compensated Densilog®
Compensated Neutron
Gamma Ray

FILE NO.
API NO.

5" = 100'

COMPANY ARCO OIL & GAS COMPANY
WELL CFW 12-15-64
FIELD MIST
COUNTY COLUMBIA STATE OREGON

LOCATION: 1999' S. & 350' E. FROM THE N.W. CORNER OF:
SEC 15 TWP 6N RGE 5W

Other Services
DIFL/GR
BHC/AL
SWC

Permanent Datum GL Elev. 1363'
Log Measured from KB 10 Ft. Above Permanent Datum
Drilling Measured from KB

Elev. KB 1373'
DF
GL 1363'

Date	8-22-88	8-24-88		
Run No.	ONE	TWO		
Service Order	159040	159042		
Depth—Driller	1445'	1950'		
Depth—Logger	1436'	1943'		
Bottom Logged Interval	1434'	1941'		
Top Logged Interval	664'	1328'		
Casing—Driller	9 5/8" @ 668'	7" @ 1332'	@	@
Casing—Logger	664'	1328'		
Bit Size	8 1/2"	8 1/2" X 6 1/4" @ 1438'		
Type Fluid in Hole	GEL/WATER	GEL/WATER		
Density and Viscosity	10.2 45.5	10.0 41		
pH and Fluid Loss	9.5 8.0 cc	9.5 7.8 cc	cc	cc
Source of Sample	FLOWLINE	MUD PIT		
Rm @ Meas. Temp.	1.25 @ 60 °F	1.50 @ 80 °F	@ °F	@ °F
Rmf @ Meas. Temp.	1.05 @ 60 °F	1.30 @ 80 °F	@ °F	@ °F
Rmc @ Meas. Temp.	1.60 @ 60 °F	2.11 @ 80 °F	@ °F	@ °F
Source of Rmf and Rmc	M M	M M		
Rm @ BHT	0.70 @ 106°F	1.10 @ 110°F	@ °F	@ °F
Time Since Circ.	3 HRS.	3 HRS.		
Max. Rec. Temp. Deg. F.	106 °F	110 °F	°F	°F
Equip. No. and Location	6406 SAC.	6406 SAC.		
Recorded By	M. HINDS	M. HINDS		
Witnessed By	MR. DAHLEEN	MR. DAHLEEN		

FOLD HERE

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT, BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASURMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

Western Atlas International
A Litton/Dresser Company

ATLAS WIRELINE SERVICES

REMARKS RUN (1)

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIAL NO.	SERIES NO.	POSITION
1	1	CDL	72541	2212	DE-CENT
1	1	CAL	72541	2212	VAR.
1	1	CN	53264	2435	DE-CENT
1	1	GR	73467	1309	DE-CENT

REMARKS RUN (2)

VOL. COMPUTED FOR 3.5″ CASING

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIAL NO.	SERIES NO.	POSITION
2	2	CDL	72451	2212	DE-CENT
2	2	CAL	72541	2212	VAR.
2	2	CN	53264	2435	DE-CENT
2	2	GR	73467	1309	DE-CENT

CURVE DELAYS

CURVE	DELAY	UNITS
SSD	0,3	FT,IN
LSD	0	FT,IN
CAL	0,0	FT,IN
SSN	9.9	FT,IN
LSN	10.3	FT,IN
GR	16,6	FT,IN
TTEN	0,0	FT,IN
TEN	0,0	FT,IN
SPD	0.0	FT,IN

PARAMETERS

NAME	DEPTH INTERVAL	VALUE	UNITS
A	1450 TO 661	0.000	
CAL DIFF	1450 TO 661	3.500	INCH
CHI SMTH	1450 TO 661	ACTIVE	
M	1450 TO 661	0.000	
MATRIX	1450 TO 661	SANDSTONE	
O.D.	1450 TO 661	7.000	INCH
RHO F	1450 TO 661	0.980	G/CC
RHO M	1450 TO 661	2.650	G/CC
SALINITY	1450 TO 661	0.000	PPK

DISPLAY SCALE CHANGES

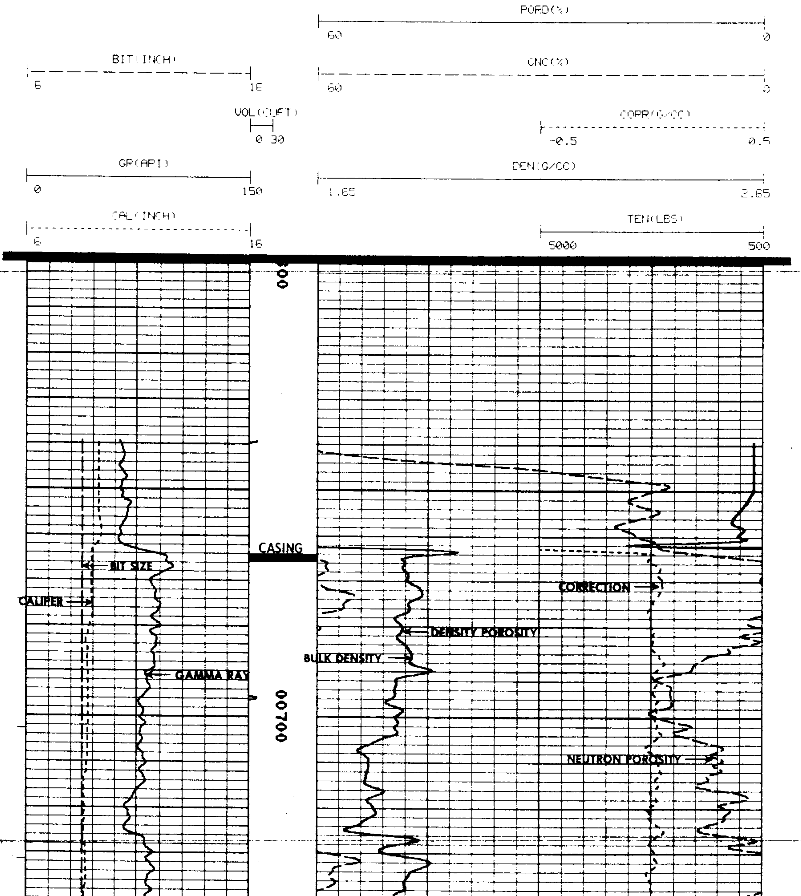
*** NONE ***

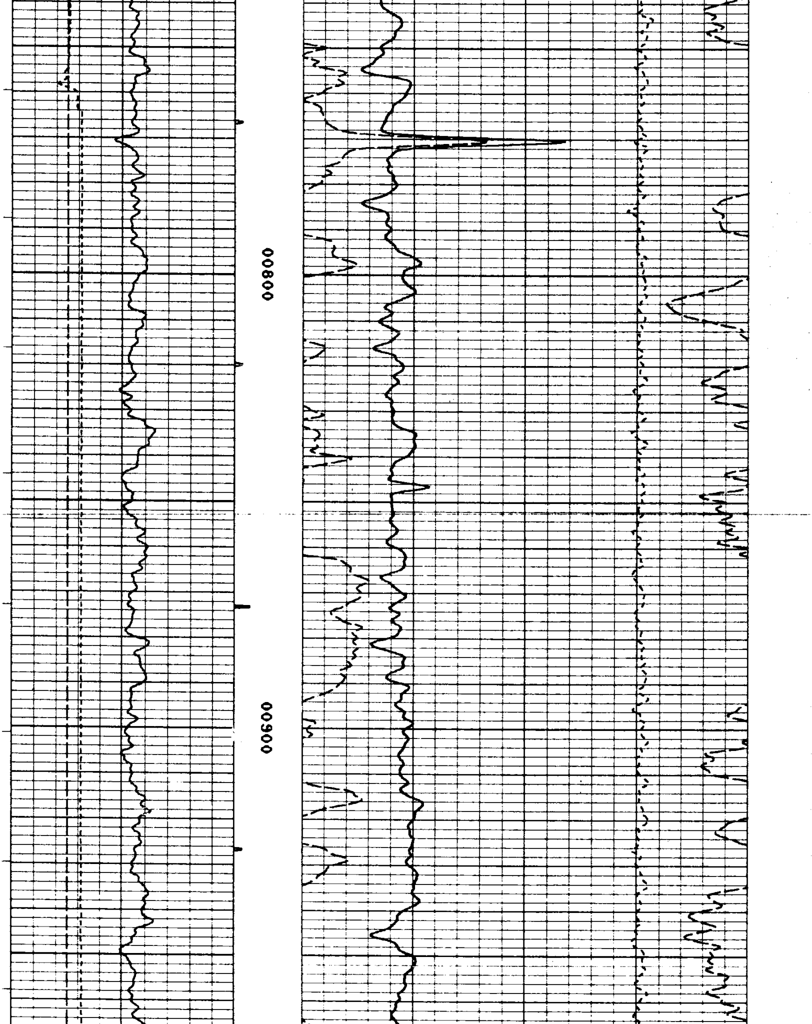
COMPANY: ARCO OIL & GAS CO.　　RUN: 1

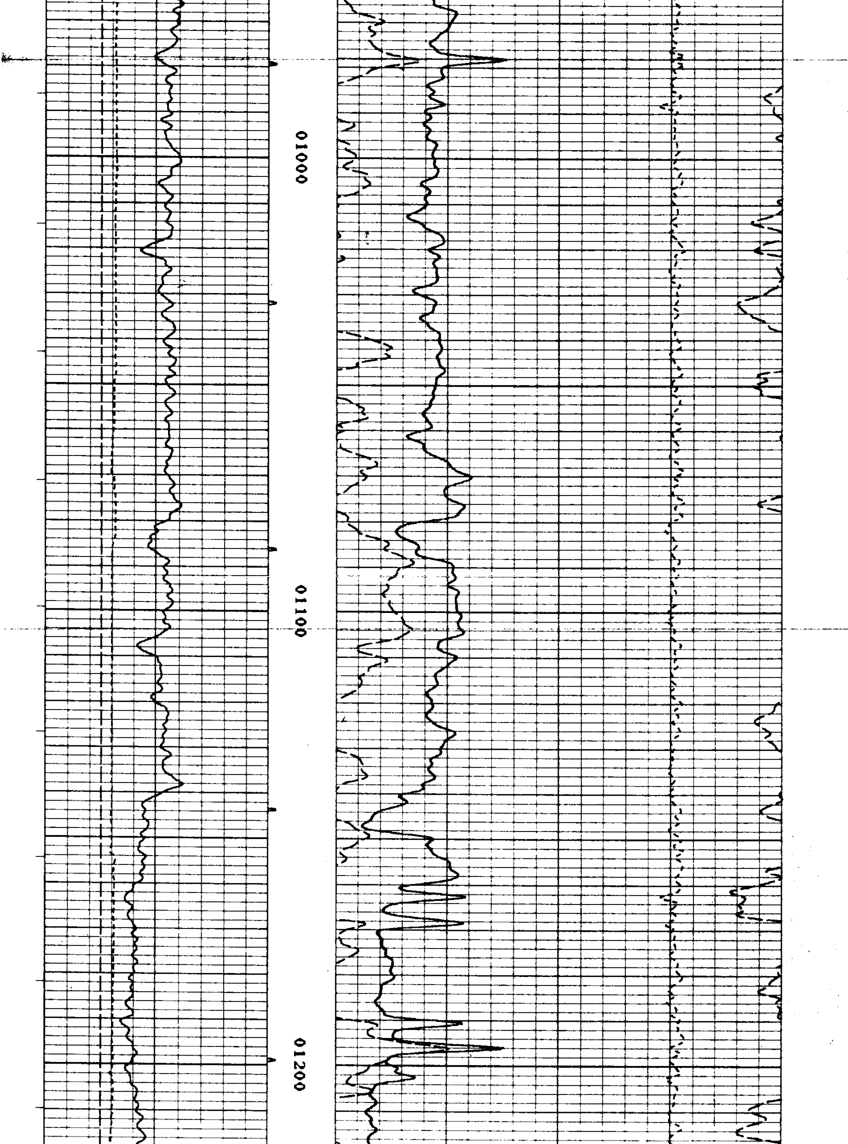
WELL NAME: CFW 12-15-64　　TRIP: 1

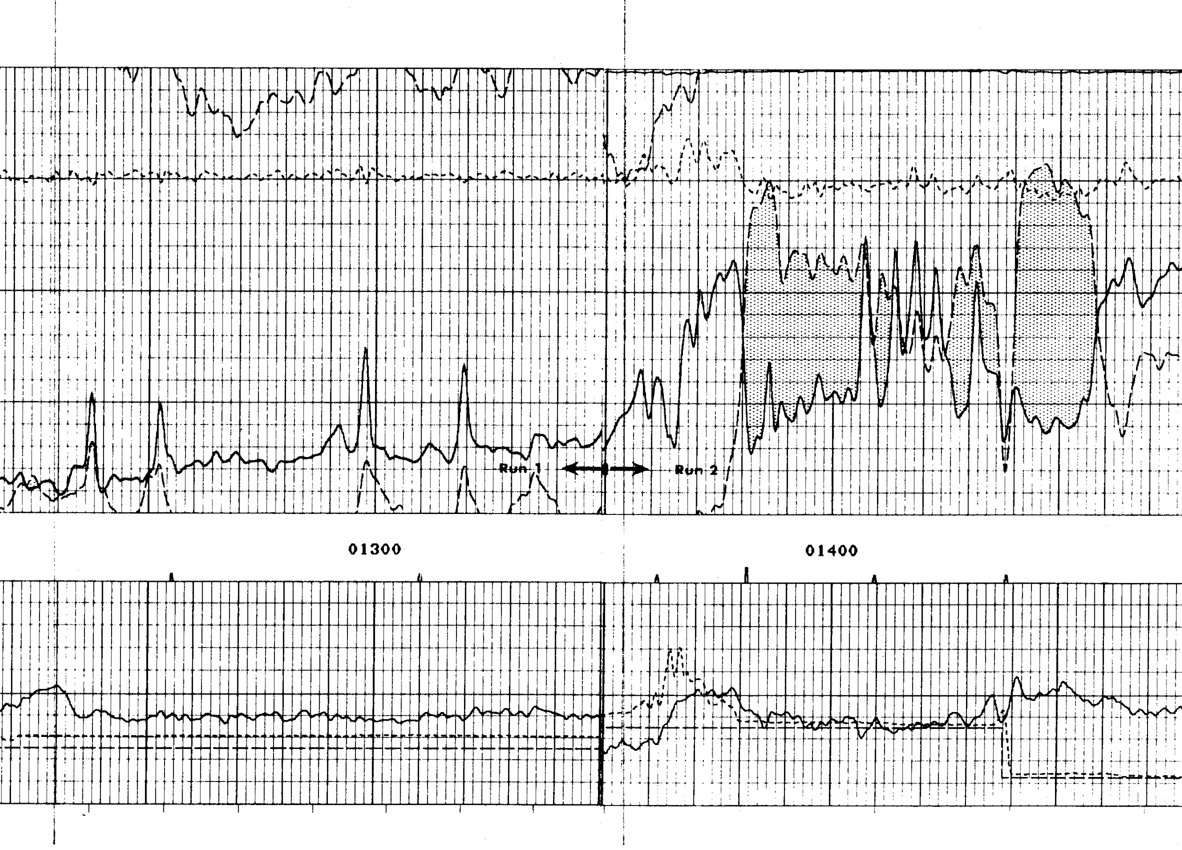
SERVICE: KC287B　　FILE: 2　　DATE: 08/22/88　　TIME: 10:46:15

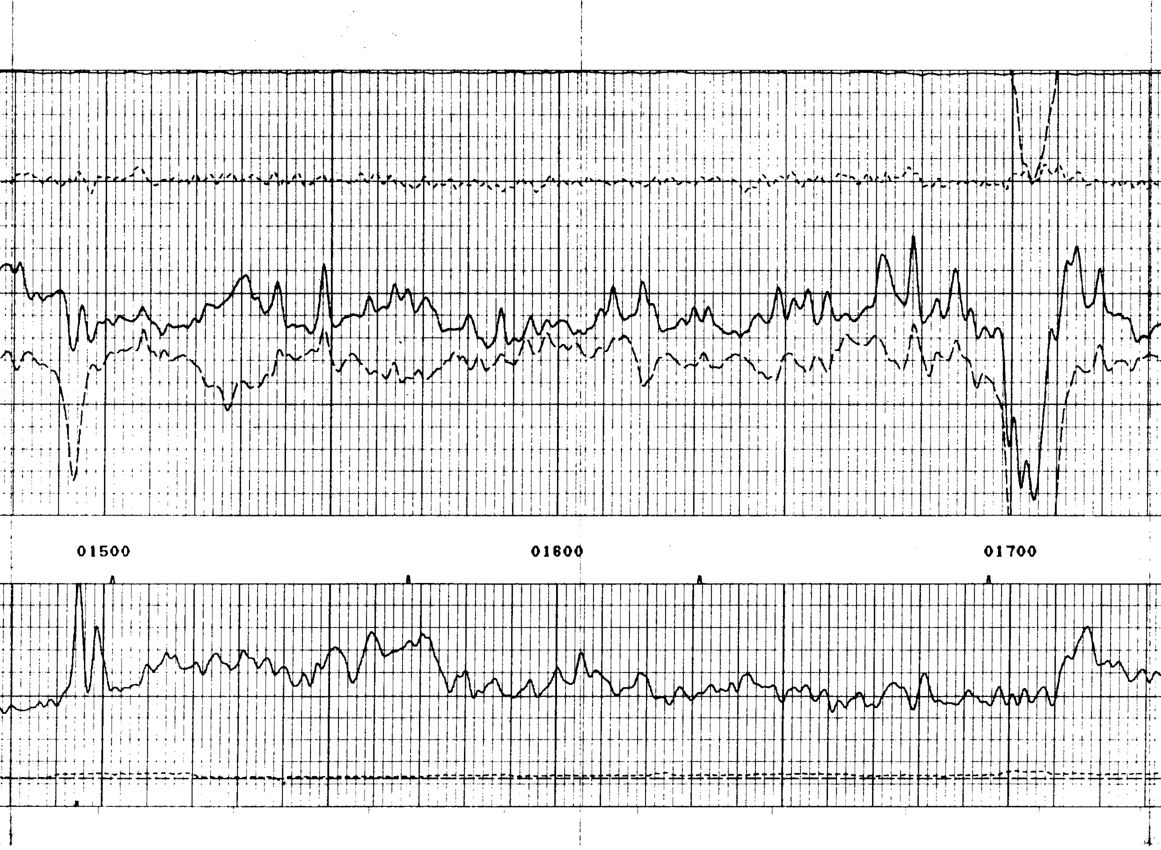
REVISION: FSYSAL REV GS08 VER+2　　MODE: RECORD

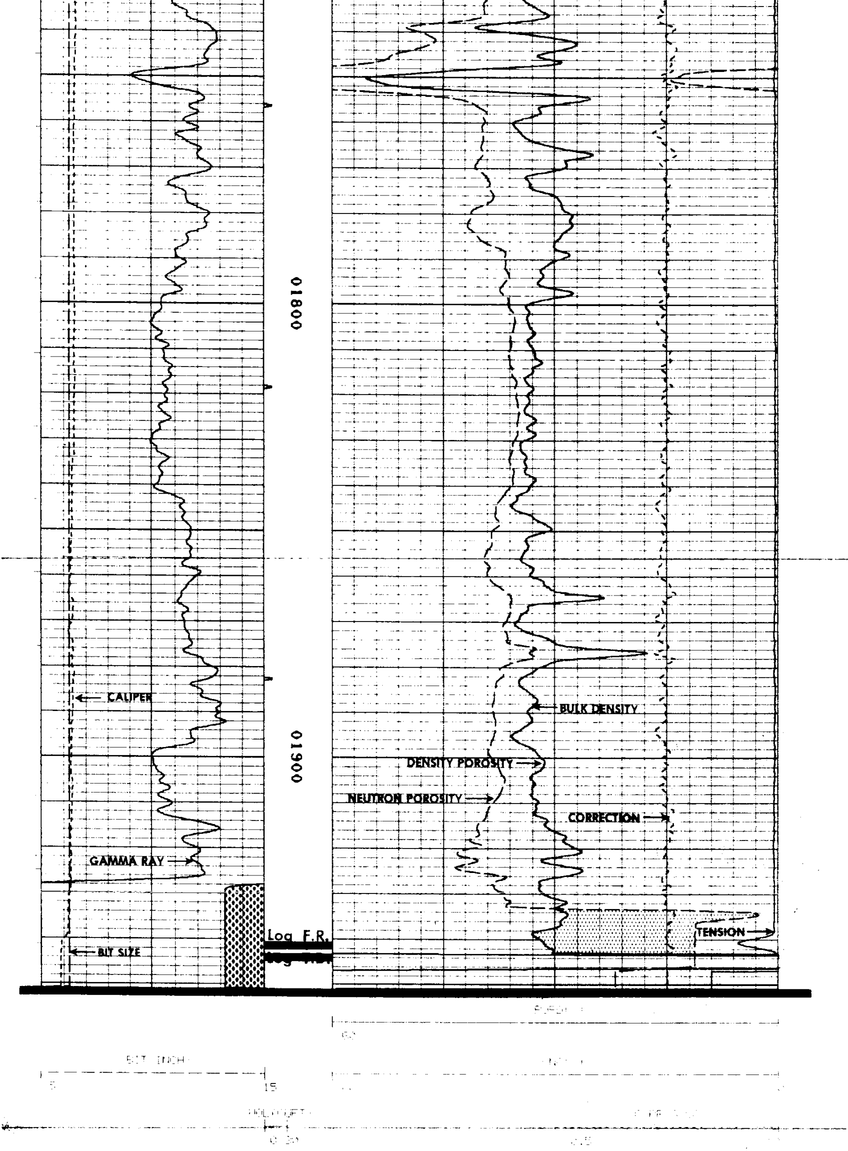






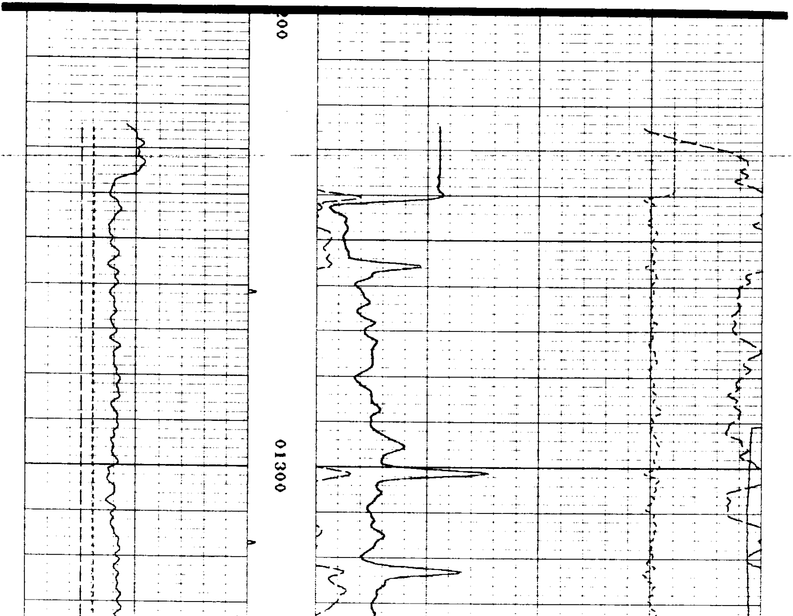


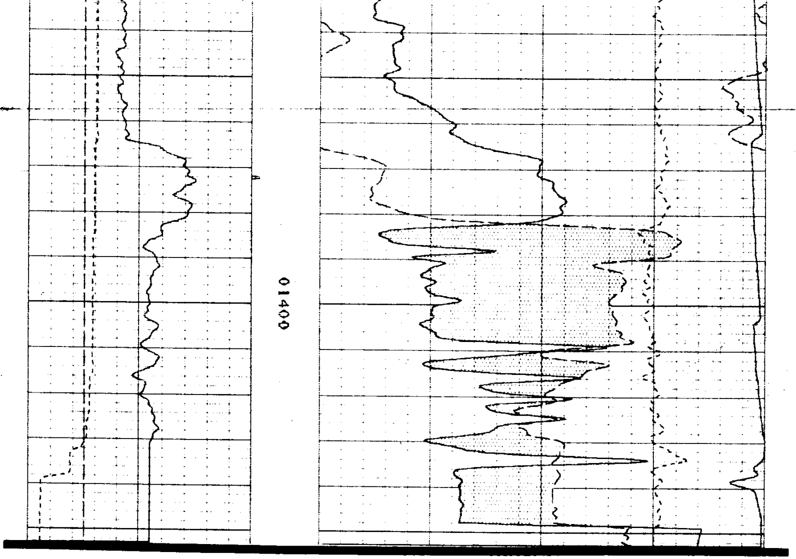




REPEAT SECTION

Run 1





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     ******************************************
     *                                        *
     *  CALIBRATION/VERIFICATION SUMMARIES    *
     *  DATE 08/22/88          TIME 11:45:53  *
     *  RUN  1                 TRIP 1         *
     *                                        *
     ******************************************


        LOG NAME CDL     ASSET NO. 72541     UNIT NO. HL 6406
     CALIBRATION ENTERED ON  08/22/88 AT 08:45:19         LARGE TOOL
                              SOURCE NUMBER 845

   CURVE    COUNTS/SEC.     SCALING FACTORS     RATIO     ENG. VALUE  UNITS
           BLOCK  VALUE     ADD.     MULT.      MG/AL
   ----    --------       -----------------   --------   ----------  ----

       DATE 08/16/88          CALIBRATION            TIME 13:11:34
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```
LSD      MG        346.4
SSD                463.5
DEN                                                             2.200   G/CC
CORR                                                            0.000   G/CC
LSD      AL        118.3     0.000      1.0000    2.3077
SSD                283.3     0.300      1.0000    1.5533
DEN                                                             2.800   G/CC
CORR                                                            0.000   G/CC
LSD      MGRV      320.4
SSD                503.3
DEN                                                             2.480   G/CC
CORR                                                            0.235   G/CC

     DATE 08/22/88    PRIMARY VERIFICATION       TIME 08:54:31

LSD      JIG       166.7     0.000      1.0000
SSD                331.4     0.000      1.0000
DEN                                                             2.542   G/CC
CORR                                                           -0.071   G/CC

     DATE 08/22/88   BEFORE LOG VERIFICATION     TIME 09:06:53

LSD      JIG       167.3     0.000      1.0000
SSD                331.7     0.000      1.0000
DEN                                                             2.538   G/CC
CORR                                                           -0.072   G/CC

     DATE 08/22/88    AFTER LOG VERIFICATION     TIME 11:25:18

LSD      JIG       166.9     0.000      1.0000
SSD                331.1     0.000      1.0000
DEN                                                             2.539   G/CC
CORR                                                           -0.073   G/CC



      LOG NAME CAL     ASSET NO. 72541     UNIT NO. 6406
  CALIBRATION ENTERED ON  08/22/88 AT 08:44:01

CURVE   MILLIVOLTS     SCALING FACTORS    ENGINEERING VALUES   UNITS
          LOW    HIGH   ADD.    MULT.        LOW        HIGH
----  -------------- ----------------- ------------------- ----

     DATE 08/22/88          CALIBRATION          TIME 08:44:01

CAL     2322.3  4081.3  -1.922    0.0250       6.000      12.000 INCH

                        PRIMARY VERIFICATION            NOT DONE
     DATE 08/22/88   BEFORE LOG VERIFICATION     TIME 09:44:57

CAL       E     4087.2  -1.322    0.0250       E          12.020 INCH

     DATE 08/22/88    AFTER LOG VERIFICATION     TIME 11:34:14

CAL       E     4075.5  -1.322    0.0250       E          11.980 INCH



      LOG NAME CN      ASSET NO. 53264     UNIT NO. 3673
  CALIBRATION ENTERED ON  08/22/88 AT 08:32:52            2435
                         SOURCE NUMBER VENT

CURVE   COUNTS/SEC.    SCALING FACTORS    RATIO      ENG. VALUE  UNITS
                        ADD.     MULT.  LSN/(SSN*4)
----    --------     ----------------- --------  ----------  ----

     DATE 07/19/88          CALIBRATION          TIME 13:08:03

LSN          85.2       0.000     1.0000
SSN         165.2       0.000     1.0000
CN                                         0.1290        24.553  %

     DATE 07/28/88    PRIMARY VERIFICATION       TIME 09:30:16

LSN          82.5       0.000     1.0000
SSN         121.6       0.000     1.0000
CN                                         0.1697        15.034  %

     DATE 08/22/88   BEFORE LOG VERIFICATION     TIME 09:36:34

LSN          82.3       0.000     1.0000
SSN         121.3       0.000     1.0000
CN                                         0.1696        15.074  %

     DATE 08/22/88    AFTER LOG VERIFICATION     TIME 11:29:46

LSN          82.4       0.000     1.0000
SSN         121.3       0.000     1.0000
CN                                         0.1699        15.031  %
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      LOG NAME GR      ASSET NO. 73467    UNIT NO. HL 6406
  CALIBRATION ENTERED ON  08/22/88 AT 08:31:39

CURVE   MILLIVOLTS      SCALING FACTORS    ENGINEERING VALUES   UNITS
          LOW    HIGH    ADD.    MULT.        LOW        HIGH
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     DATE 07/08/88         CALIBRATION         TIME 12:22:32

GR      7196.3  6310.6    0.000    0.0890      0.000     150.000 API

                        PRIMARY VERIFICATION           NOT DONE

     DATE 08/22/88   BEFORE LOG VERIFICATION    TIME 09:00:36

GR      2871.7  6604.6    0.000    0.0890    104.697     240.790 API

     DATE 08/22/88    AFTER LOG VERIFICATION    TIME 11:42:35

GR      1760.6  5570.5    0.000    0.0890     64.196     203.098 API
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Run 2

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****************************************
*                                      *
*  CALIBRATION/VERIFICATION SUMMARIES  *
*  DATE 08/24/88          TIME 21:06:51 *
*  RUN  2                 TRIP 1        *
*                                      *
****************************************
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      LOG NAME CDL     ASSET NO. 72541    UNIT NO. HL 6406
  CALIBRATION ENTERED ON  08/24/88 AT 19:13:33        LARGE TOOL
                          SOURCE NUMBER 845

CURVE   COUNTS/SEC.     SCALING FACTORS    RATIO     ENG. VALUE  UNITS
        BLOCK  VALUE     ADD.    MULT.     MG/AL
----    --------       -----------------  --------   ----------  ----

     DATE 08/16/88         CALIBRATION         TIME 13:11:34

LSD     MG      346.4
SSD             463.5
DEN                                                        2.200  G/CC
CORR                                                       0.000  G/CC
LSD     AL      118.3    0.000    1.0000    2.9277
SSD             298.3    0.000    1.0000    1.5533
DEN                                                        2.300  G/CC
CORR                                                       0.000  G/CC
LSD     MGR     320.4
SSD             503.3
DEN                                                        1.490  G/CC
CORR                                                       0.235  G/CC

     DATE 08/22/88    PRIMARY VERIFICATION      TIME 08:54:31

LSD     JIG     166.7    0.000    1.0000
SSD             331.4    0.000    1.0000
DEN                                                        2.542  G/CC
CORR                                                      -0.071  G/CC

     DATE 08/24/88   BEFORE LOG VERIFICATION    TIME 19:21:51

LSD     JIG     167.4    0.000    1.0000
SSD             331.1    0.000    1.0000
DEN                                                        2.534  G/CC
CORR                                                      -0.076  G/CC

     DATE 08/24/88    AFTER LOG VERIFICATION    TIME 20:58:46

LSD     JIG     166.0    0.000    1.0000
SSD             328.3    0.000    1.0000
DEN                                                        2.530  G/CC
CORR                                                      -0.035  G/CC
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       LOG NAME CAL     ASSET NO. 72541     UNIT NO. 6406
   CALIBRATION ENTERED ON  08/24/88 AT 19:20:58

CURVE   MILLIVOLTS      SCALING FACTORS    ENGINEERING VALUES   UNITS
         LOW    HIGH    ADD.     MULT.       LOW        HIGH
----   -------------- ------------------ -------------------- ----

      DATE 08/22/88         CALIBRATION         TIME 03:44:01

CAL     2322.3  4081.3   -1.922    0.0250      6.000      12.000 INCH

                        PRIMARY VERIFICATION            NOT DONE

      DATE 08/24/88   BEFORE LOG VERIFICATION   TIME 19:34:49

CAL     2705.5    E      -2.522    0.0250      6.707        E      INCH

      DATE 08/24/88     AFTER LOG VERIFICATION   TIME 20:27:39

CAL     2740.7    E      -2.522    0.0250      6.827        E      INCH


       LOG NAME CN      ASSET NO. 53254     UNIT NO. [illegible]
   CALIBRATION ENTERED ON  08/24/88 AT 19:19:33           2435
                         SOURCE NUMBER VENT

CURVE   COUNTS/SEC.     SCALING FACTORS     RATIO     ENG. VALUE  UNITS
                        ADD.     MULT.  LSN/(SSN*4)
----    --------      ------------------ --------  ----------  ----

      DATE 07/19/88         CALIBRATION         TIME 18:08:03

LSN          85.2        0.000    1.0000
SSN         165.2        0.000    1.0000
CN                                         0.1290       24.558  %

      DATE 07/28/88     PRIMARY VERIFICATION      TIME 09:30:16

LSN          82.5        0.000    1.0000
SSN         121.6        0.000    1.0000
CN                                         0.1697       15.034  %

      DATE 08/24/88   BEFORE LOG VERIFICATION   TIME 19:25:42

LSN          80.1        0.000    1.0000
SSN         122.1        0.000    1.0000
CN                                         0.1641       16.073  %

      DATE 08/24/88     AFTER LOG VERIFICATION   TIME 21:02:33

LSN          80.9        0.000    1.0000
SSN         120.7        0.000    1.0000
CN                                         0.1675       15.447  %


       LOG NAME GR      ASSET NO. 73487     UNIT NO. HL 6406
   CALIBRATION ENTERED ON  08/24/88 AT 19:20:14

CURVE   MILLIVOLTS      SCALING FACTORS    ENGINEERING VALUES   UNITS
         LOW    HIGH    ADD.     MULT.       LOW        HIGH
----   -------------- ------------------ -------------------- ----

      DATE 07/03/88         CALIBRATION         TIME 13:22:32

GR      2198.3  6310.6    0.000    0.0330      0.000     150.000 API

                        PRIMARY VERIFICATION            NOT DONE

                      BEFORE LOG VERIFICATION           NOT DONE

      DATE 08/24/88     AFTER LOG VERIFICATION   TIME 20:54:54

GR      3218.6  7214.9    0.000    0.0330    117.381     283.041 API
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