[redacted]

COMPENSATED **DENSILOG®**
COMPENSATED **NEUTRON**
GAMMA RAY

COMPANY ARCO OIL & GAS COMPANY

WELL LF 32-20-65 R RD NO. 1

FIELD MIST

COUNTY COLUMBIA STATE OR

LOCATION:
1561´ S & 1334´ W FROM
THE NE CORNER OF

SEC 20 TWP 6N RGE 5W

OTHER SERVICES
DIFL/BHC AC

PERMANENT DATUM GL ELEV. 1023´
LOGGING MEASURED FROM KB 10´ FT. ABOVE P.D.
DRILLING MEASURED FROM KB

ELEVATIONS
KB 1033
DF -
GL 1023´

DATE	8/14/88									
RUN	1									
SERVICE ORDER	159039									
DEPTH-DRILLER	3088´									
DEPTH-LOGGER	3076´									
BOTTOM LOGGED INTERVAL	3074´									
TOP LOGGED INTERVAL	1533´									
CASING - DRILLER	7"	@ 1533´		@		@		@		
CASING - LOGGER	1533´									
BIT SIZE	6 1/4"									
TYPE FLUID IN HOLE	E Z MUD									
DENSITY / VISCOSITY	10.5	43								
PH / FLUID LOSS	9.5	6.2								
SOURCE OF SAMPLE	FLOWLINE									
RM AT MEAS. TEMP.	2.95	@ 82 F		@		@		@		
RMF AT MEAS. TEMP.	2.82	@ 80 F		@		@		@		
RMC AT MEAS. TEMP.	3.01	@ 80 F		@		@		@		
SOURCE OF RMF / RMC	MEAS	MEAS								
RM AT BHT	2.36	@ 100 F		@		@		@		
TIME SINCE CIRCULATION	4 HRS									
MAX. REC. TEMP. DEG. F	100 F									
EQUIP. NO. / LOC.	HL 6406	SAC								
RECORDED BY	B. WELCH									
WITNESSED BY	J. W. THOMPSON									

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)

BHV COMPUTED FOR 3 1/2 " CSG

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIAL NO.	SERIES NO.	POSITION
1	1	CDL	72541	2212	DECENT
1	1	CAL	72541	2212	DECENT
1	1	CN	53264	2435	DECENT
1	1	GR	73467	1309	DECENT

CURVE DELAYS

CURVE	DELAY	UNITS
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```
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
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                 PARAMETERS

  NAME     DEPTH INTERVAL    VALUE      UNITS
--------  --------------  ----------  -------
A           3086 TO  1519      0.000

CAL CORR    3086 TO  1519      6.250  INCH

CHI SMTH    3086 TO  1519    ACTIVE

M           3086 TO  1519      0.000

MATRIX      3086 TO  1519  SANDSTONE

O.D.        3086 TO  1519      3.500  INCH

RHO F       3086 TO  1519      0.980  G/CC

RHO M       3086 TO  1519      2.650  G/CC

SALINITY    3086 TO  1519      0.000  PPK
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           DISPLAY SCALE CHANGES

                *** NONE ***
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COMPANY:    ARCO OIL & GAS COMPANY                          RUN:  1

WELL NAME:  LF 32-20-65 R RD NO. 1                          TRIP: 1

SERVICE:    KC287B        FILE:   2        DATE:  08/14/88    TIME:  20:31:26

REVISION:   FSYSAL REV GS08 VER+2                           MODE: RECORD
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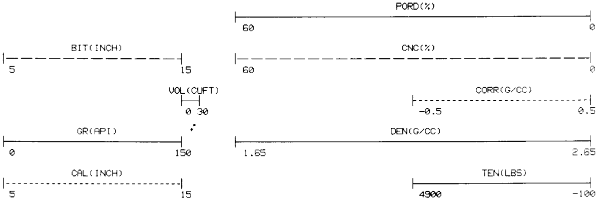
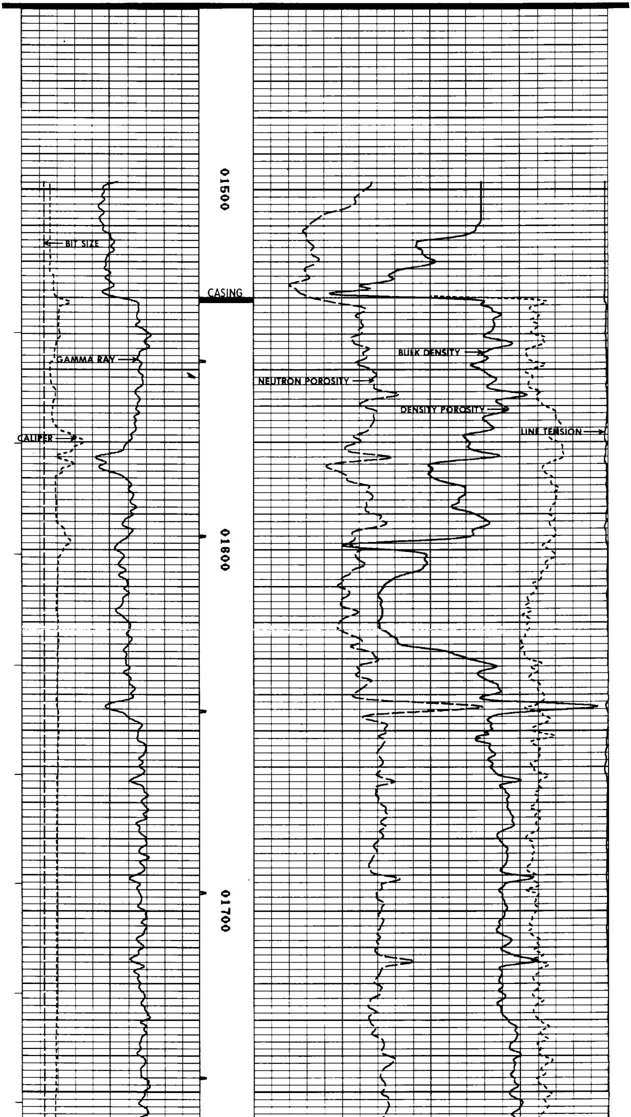
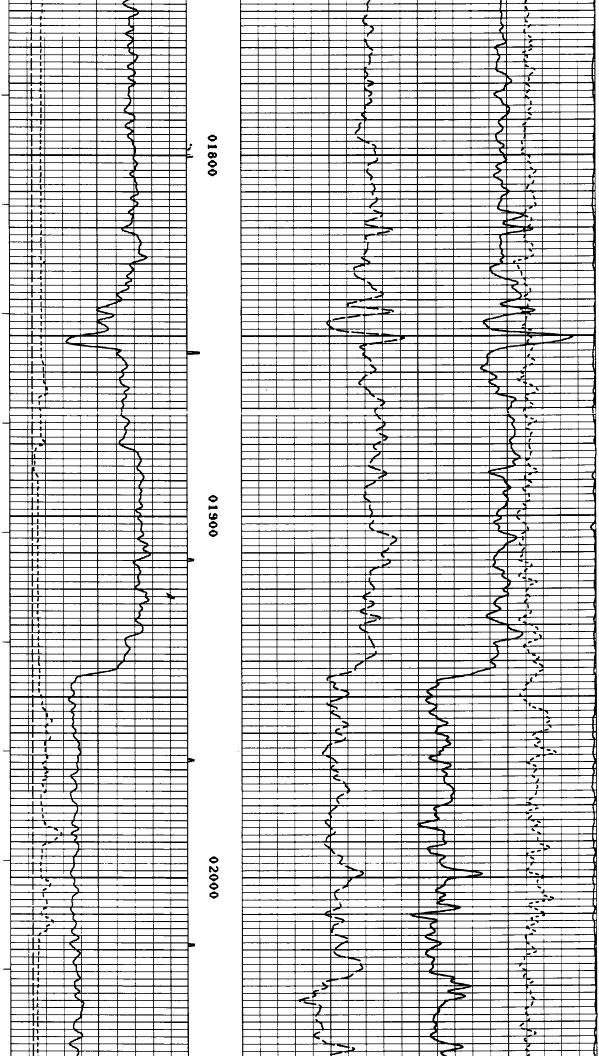
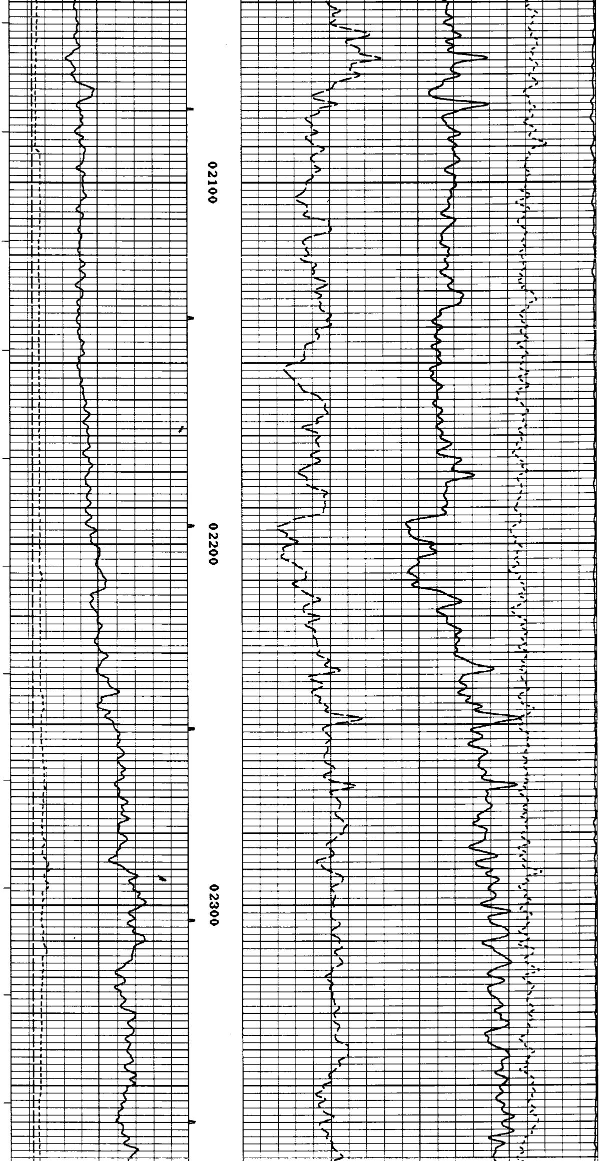
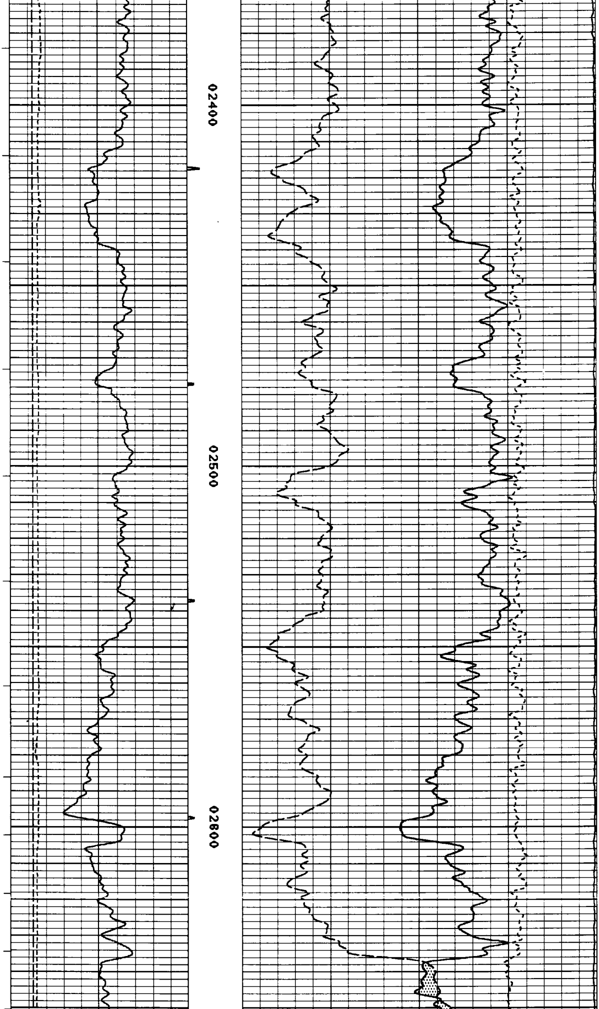
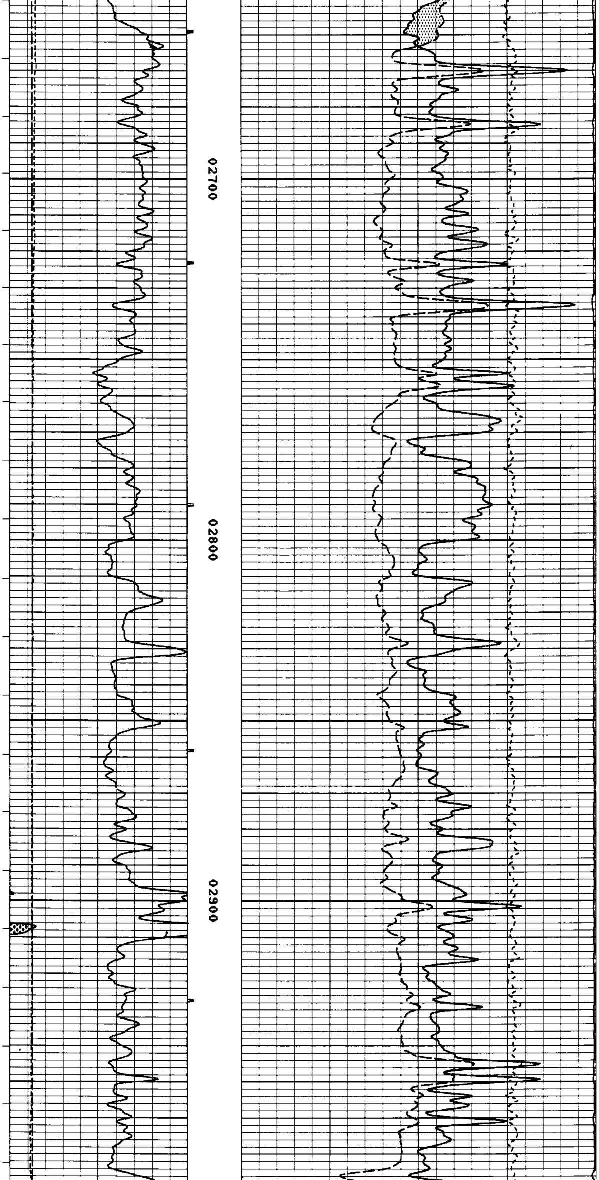


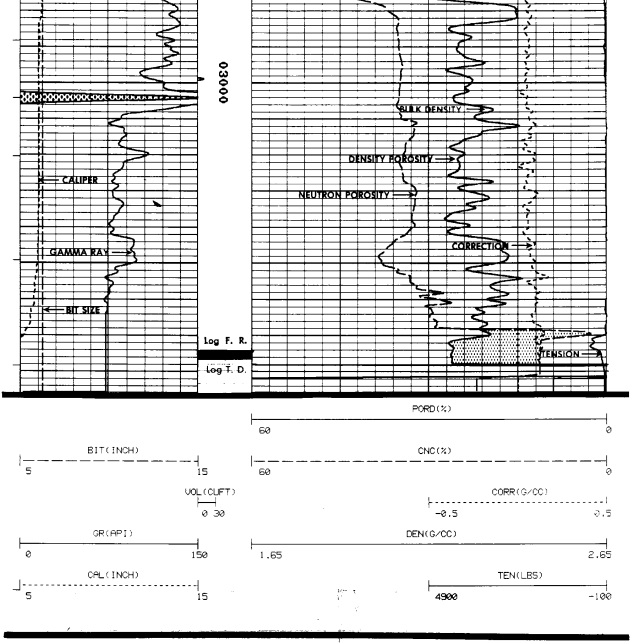












CURVE DELAYS

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	3094 TO 2601	0.000	
CAL CORR	3094 TO 2601	6.250	INCH
CHI SMTH	3094 TO 2601	ACTIVE	
M	3094 TO 2601	0.000	
MATRIX	3094 TO 2601	SANDSTONE	
O.D.	3094 TO 2601	3.500	INCH
RHO F	3094 TO 2601	0.980	G/CC
RHO M	3094 TO 2601	2.650	G/CC
SALINITY	3094 TO 2601	0.000	PPK

DISPLAY SCALE CHANGES

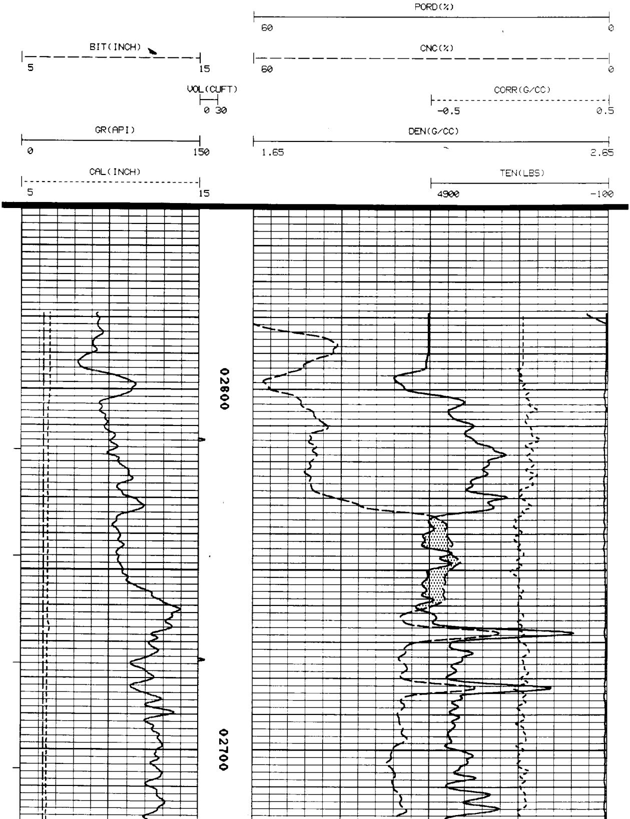
*** NONE ***

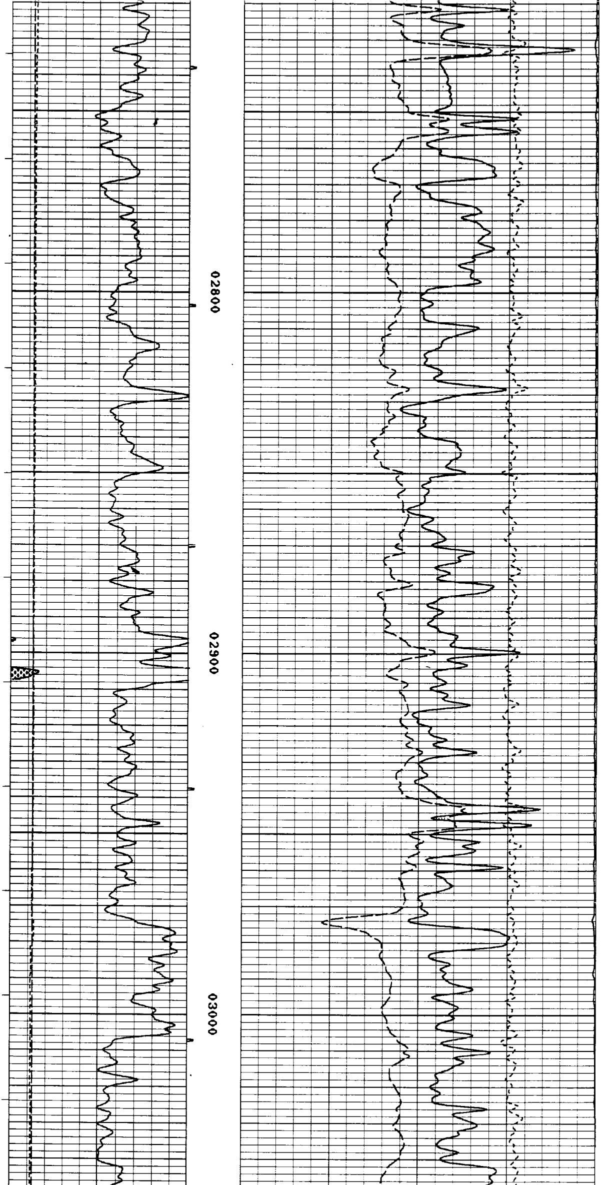
COMPANY: ARCO OIL & GAS COMPANY
WELL NAME: LF 32-20-65 R RD NO. 1
SERVICE: KC287B FILE: 1
REVISION: FSYSAL REV GS08 VER+2

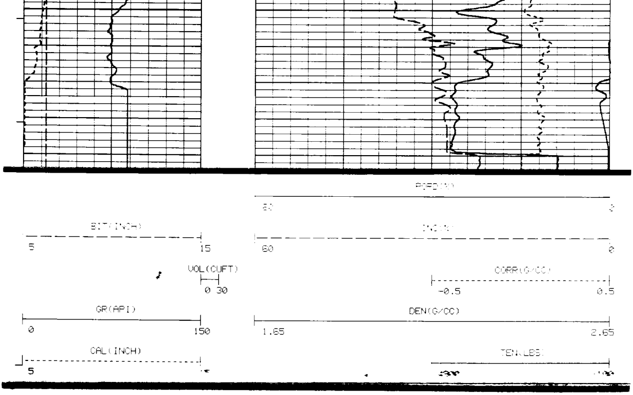
DATE: 08/14/88

REPEAT SECTION

RUN: 1
TRIP: 1
TIME: 20:05:10
MODE: RECORD







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        *                                        *
        *  CALIBRATION VERIFICATION SUMMARIES    *
        *  DATE 08/14/88         TIME 22:16:13   *
        *  RUN  1                TRIP 1          *
        *                                        *
        ******************************************


      LOG NAME CDL     ASSET NO. 72541     UNIT NO. EA LAE
  CALIBRATION ENTERED ON  08/14/88 AT 13:48:50         LARGE TOOL
                           SOURCE NUMBER 845

CURVE   COUNTS/SEC.    SCALING FACTORS    RATIO     ENG. VALUE  UNITS
        BLOCK  VALUE   ADD.     MULT.     MG/AL
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     DATE 07/06/88          CALIBRATION          TIME 14:03:48

LSD     MG      346.3
SSD             463.5
DEN                                                    2.300   G/CC
CORR                                                   0.000   G/CC
LSD     AL      118.2    0.000     1.0000   2.9293
SSD             298.2    0.000     1.0000   1.5546
DEN                                                    2.800   G/CC
CORR                                                   0.000   G/CC
LSD     MGRV    320.6
SSD             503.3
DEN                                                    2.480   G/CC
CORR                                                   0.235   G/CC

     DATE 07/23/88    PRIMARY VERIFICATION       TIME 17:14:49

LSD     JIG     121.0    0.000     1.0000
SSD             306.0    0.000     1.0000
DEN                                                    2.818   G/CC
CORR                                                   0.030   G/CC

     DATE 03/14/88   BEFORE LOG VERIFICATION     TIME 14:18:58

LSD     JIG     122.5    0.000     1.0000
SSD             309.0    0.000     1.0000
DEN                                                    2.818   G/CC
CORR                                                   0.038   G/CC

     DATE 08/14/88    AFTER LOG VERIFICATION     TIME 21:47:29

LSD     JIG     124.5    0.000     1.0000
SSD             310.7    0.000     1.0000
DEN                                                    2.807   G/CC
CORR                                                   0.036   G/CC


      LOG NAME CAL     ASSET NO. 72541     UNIT NO. HL 6406
  CALIBRATION ENTERED ON  08/14/88 AT 13:47:42

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

     DATE 07/23/88          CALIBRATION           TIME 17:22:02

CAL     2326.7  4215.4   -1.392    0.0233       6.000       12.000 INCH

     DATE 07/23/88    PRIMARY VERIFICATION        TIME 17:22:46

CAL       E     4214.8   -1.392    0.0233       E           11.995 INCH

     DATE 08/14/88   BEFORE LOG VERIFICATION      TIME 13:57:44

CAL       E     2698.0   -1.792    0.0233       E            6.773 INCH

     DATE 08/14/88    AFTER LOG VERIFICATION      TIME 21:39:02
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CAL      E     2756.8   -1.792    0.0233       E          6.966 INCH


      LOG NAME CN       ASSET NO. 53264    UNIT NO. 8678
  CALIBRATION ENTERED ON  08/14/88 AT 13:48:10             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 08:30:16

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

     DATE 08/14/88    BEFORE LOG VERIFICATION    TIME 14:02:36

LSN          84.9         0.000     1.0000
SSN         121.3         0.000     1.0000
CN                                            0.1750        14.152  %

     DATE 08/14/88     AFTER LOG VERIFICATION    TIME 21:43:01

LSN          83.5         0.000     1.0000
SSN         121.6         0.000     1.0000
CN                                            0.1716        14.725  %



      LOG NAME GR       ASSET NO. 73467    UNIT NO. HL 6406
  CALIBRATION ENTERED ON  08/14/88 AT 13:49:18

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      2196.3  6310.6    0.000     0.0890      0.000     150.000 API

                      PRIMARY VERIFICATION            NOT DONE

     DATE 08/14/88   BEFORE LOG VERIFICATION    TIME 13:56:08

GR      4487.9  8337.2    0.000     0.0890    163.620     303.957 API

     DATE 08/14/88    AFTER LOG VERIFICATION    TIME 22:11:17

GR      [illegible] [illegible]    0.000     0.0890     88.448     237.694 API
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