Western Atlas International

ATLAS WIRELINE SERVICES

DUAL INDUCTION FOCUSED LOG

FILE NO. 3947

API NO. 36-009-00267

5" = 100'

COMPANY **NORTHWEST NATURAL GAS CO**

WELL I. W. 13b - 11

FIELD MIST

COUNTY COLUMBIA STATE OREGON

LOCATION:
272.25' NORTH & 344.20' EAST
FROM THE WEST 1/4 CORNER OF:

SEC 11 TWP 6N RGE 5W

OTHER SERVICES
BHC AC-GR-CAL
CDLC-CN-GR
DIPLOG

PERMANENT DATUM GROUND LEVEL ELEV. 886.45
LOGGING MEASURED FROM K. B. 11.4 FT. ABOVE P.D.
DRILLING MEASURED FROM K. B.

ELEVATIONS
KB 897.85'
DF ---
GL 886.45'

FINAL PRINT

DATE	24-SEP-91		28 SEP-91					
RUN	1		2					
SERVICE ORDER	66910		66912					
DEPTH-DRILLER	2214'		2905'					
DEPTH-LOGGER	2209'		2905'					
BOTTOM LOGGED INTERVAL	2207'		2903					
TOP LOGGED INTERVAL	530'		2210'					
CASING - DRILLER	13 3/8"	@ 532'	8 5/8"	@ 2210'		@		@
CASING - LOGGER	530'		2210'					
BIT SIZE	12 1/4"		7 7/8"					
TYPE FLUID IN HOLE	GEL/POLYMER		KCL/HEC 10/CACL					
DENSITY / VISCOSITY	9.3	55	9.2	42				
PH / FLUID LOSS	9.0	4.6	9.0	12.4				
SOURCE OF SAMPLE	FLOWLINE		FLOWLINE					
RM AT MEAS. TEMP.	2.14	@ 72 F	.130	@ 69 F		@		@
RMF AT MEAS. TEMP.	2.31	@ 72 F	.126	@ 69 F		@		@
RMC AT MEAS. TEMP.	2.01	@ 72 F	.154	@ 69 F		@		@
SOURCE OF RMF / RMC	MEASURED	MEASURED	MEASURED	MEASURED				
RM AT BHT	1.55	@ 101 F	.030	@ 100 F		@		@
TIME SINCE CIRCULATION	2 1/2 HRS.		3 HRS.					
MAX. REC. TEMP. DEG. F	101 F		100 F					
EQUIP. NO. / LOC.	HL 6399	BAKRSFLD	HL 6399	BAKRSFLD				
RECORDED BY	TORGERSON		TORGERSON					
WITNESSED BY	CLAYTON ROTH		CLAYTON ROTH					

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 MEASUREMENTS, 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.

REMARKS RUN (1)

TAYLOR RIG 4
BHT 101 F & 101 F
VOLUME COMPUTED FOR 8 5/8" CASING
BHC ACOUSTILOG MANDREL IS A T3R1R3T TYPE

REMARKS RUN (2)

TAYLOR RIG 4
BHT 100 F & 100 F
VOLUME COMPUTED USING 5 1/2" LINER
FOCUSED LOG DID NOT REPEAT ACROSS BOTTOM SECTION, HOWEVER LOG AGREES WITH OFFSET LOGS. RAN SECOND REPEAT ACROSS TOP SECTION AND OBTAINED BETTER REPEATABILITY.

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIAL NO.	SERIES NO.	POSITION
1	1	DIFL	72372	1503XA	1.5" S. O.
1	1	AC	79731-79726	1609-1603	CENTRALIZED
1	1	GR	60519	1309XA	CENTRALIZED
1	1	CAL	55718	4209XA	CENTRALIZED

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIAL NO.	SERIES NO.	POSITION
2	1	DIFL	72372	1503XA	1.5" S. O.
2	1	AC	79731-79726	1609-1603	CENTRALIZED
2	1	GR	60519	1309XA	CENTRALIZED
2	1	CAL	55718	4209XA	CENTRALIZED

5" = 100'

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                           FILE:   4


      CURVE  DELAY  REPORT
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                         PHYS.
                 CURVE   DELAY   UNITS
                 -----   -----   -----

                 CFOC        0   FT,IN
                 CILM      6,0   FT,IN
                 CILD      9,3   FT,IN
                 SP        9,3   FT,IN
                 GR       48,3   FT,IN
                 CAL      58,0   FT,IN
                 ACQ      31,9   FT,IN
                 AC       31,9   FT.IN


      PARAMETERS
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              NAME       DEPTH INTERVAL    VALUE      UNITS
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A	2240 TO 453	1.000	
DEL-T F	2240 TO 453	189.000	MICS/FT
DEL-T M	2240 TO 453	55.500	MICS/FT
DEL-T S	2240 TO 453	100.000	MICS/FT
M	2240 TO 453	2.000	
O.D.	2240 TO 453	8.625	INCH
PORA	2240 TO 453	WYLLIE	

FILE: 3

PARAMETERS

NAME	DEPTH INTERVAL	VALUE	UNITS
A	2917 TO 2025	1.000	
DEL-T F	2917 TO 2025	189.000	MICS/FT
DEL-T M	2917 TO 2025	55.500	MICS/FT
DEL-T S	2917 TO 2025	100.000	MICS/FT
M	2917 TO 2025	2.000	
O.D.	2917 TO 2025	5.500	INCH
PORA	2917 TO 2025	WYLLIE	

DISPLAY SCALE CHANGES

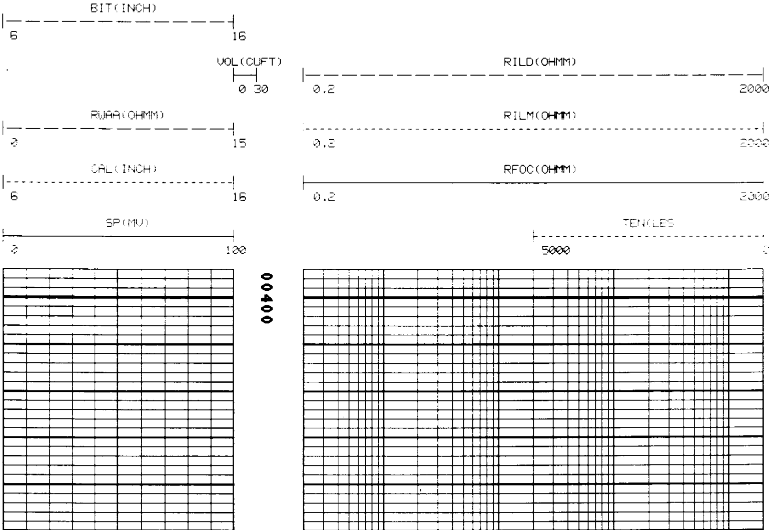
*** NONE ***

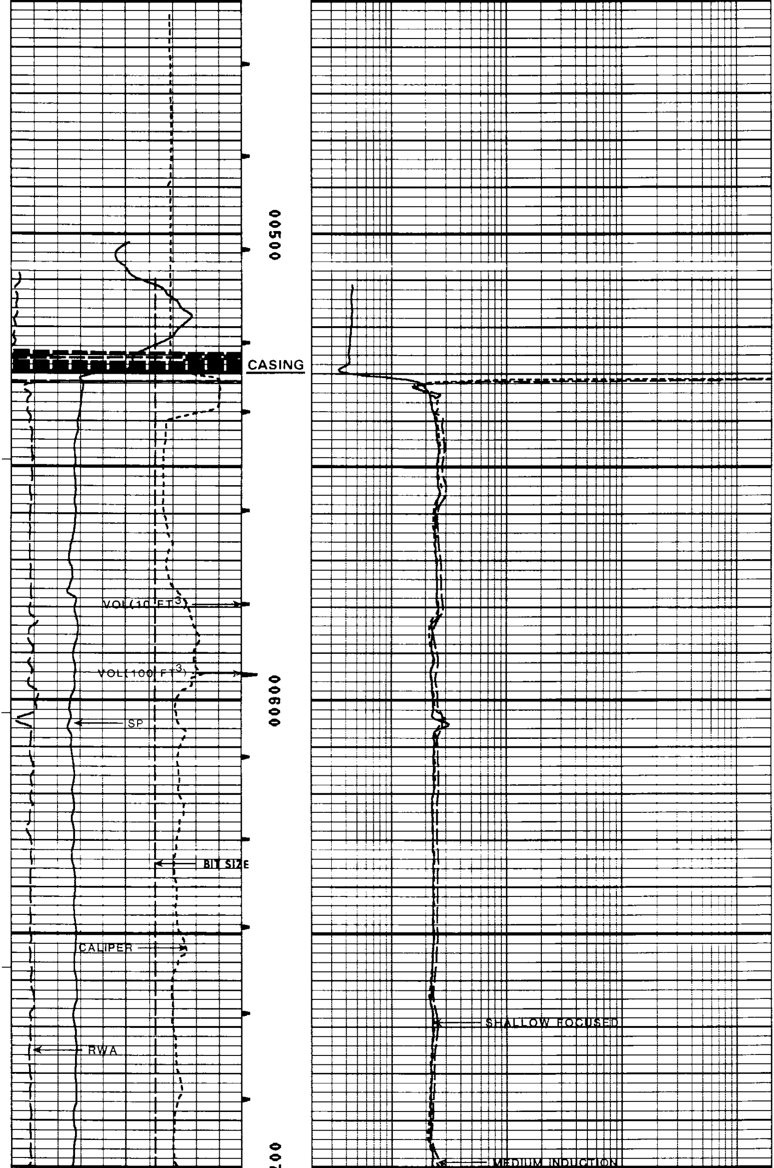
COMPANY: OREGON NATURAL GAS DEVELOPMENT CORP. RUN: 1

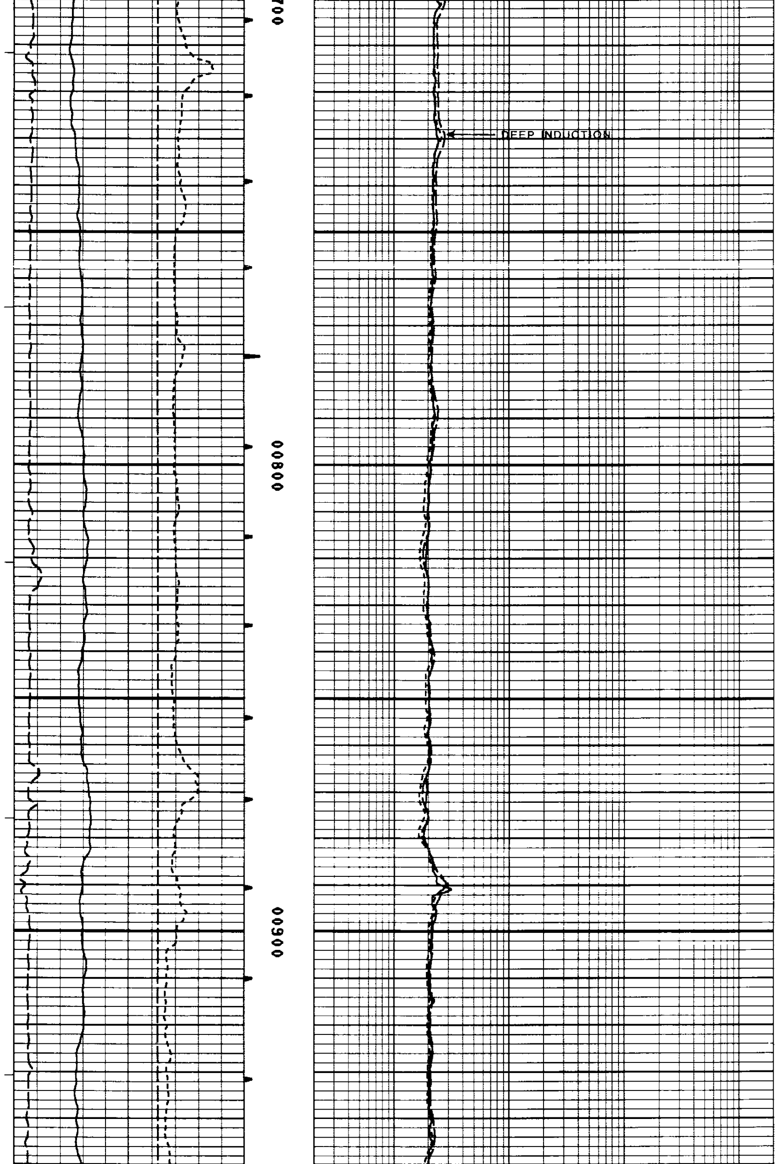
WELL NAME: I. W. 13b - 11 TRIP: 1

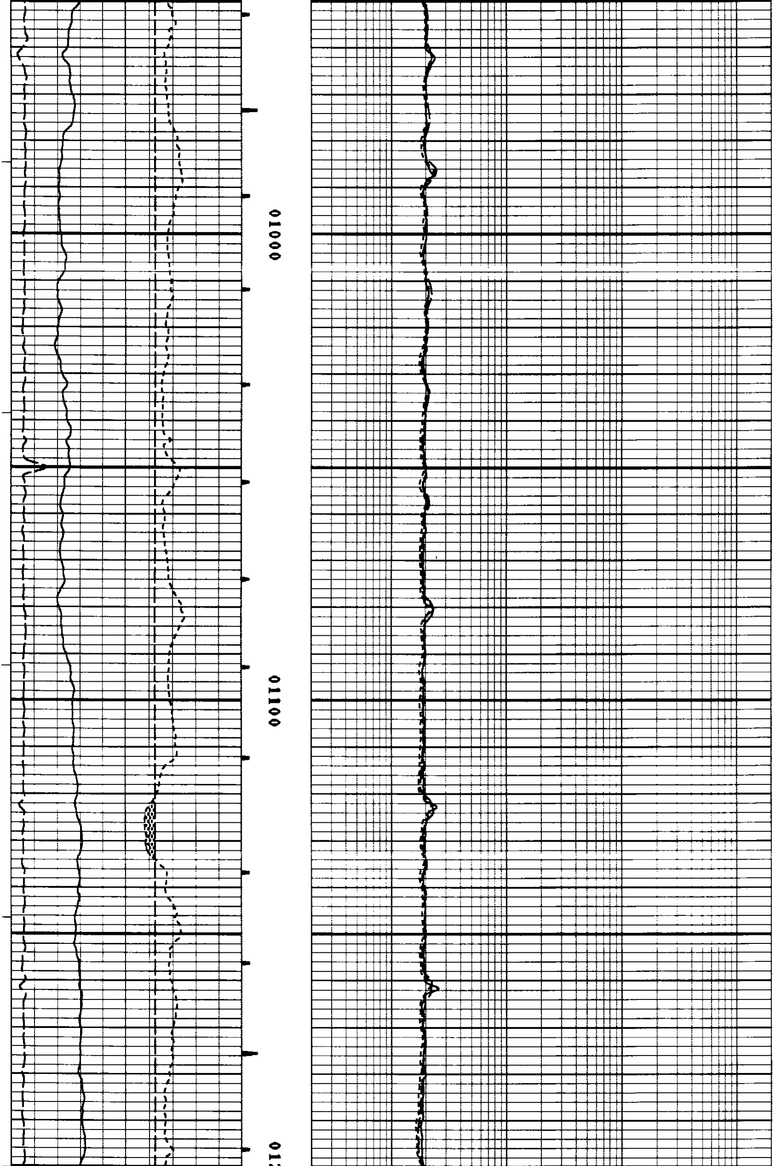
SERVICE: BK214M FILE: 4 DATE: 09/24/91 TIME: 20:35:24

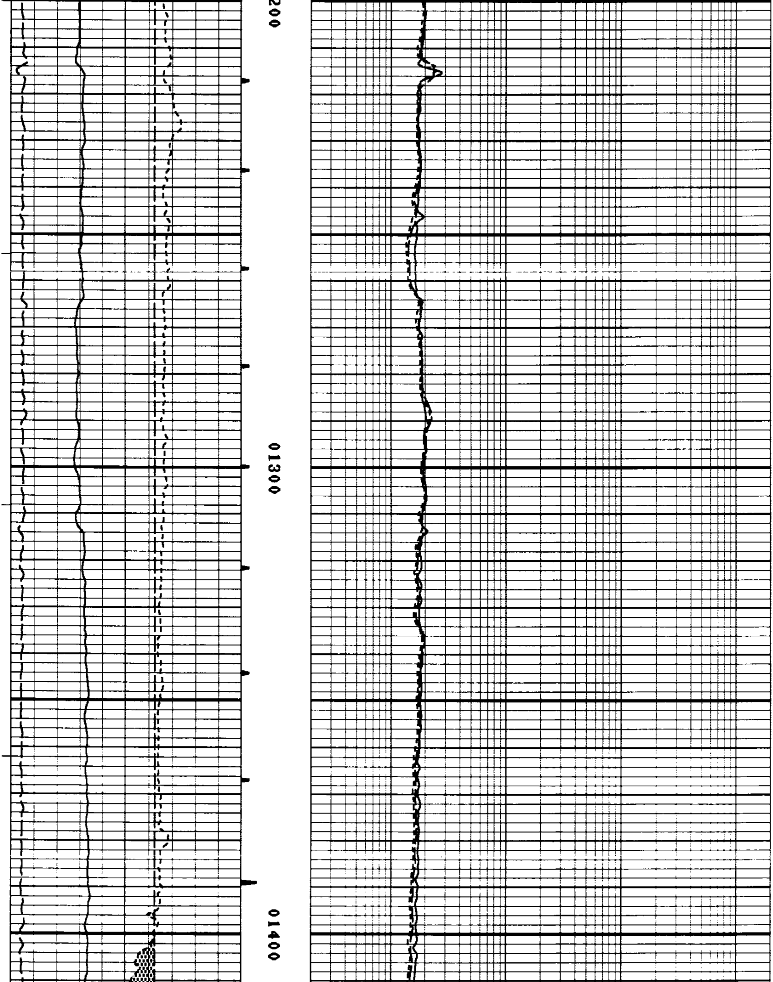
REVISION: FSYS256 REV:G002 VER:2.0 MODE: RECORD

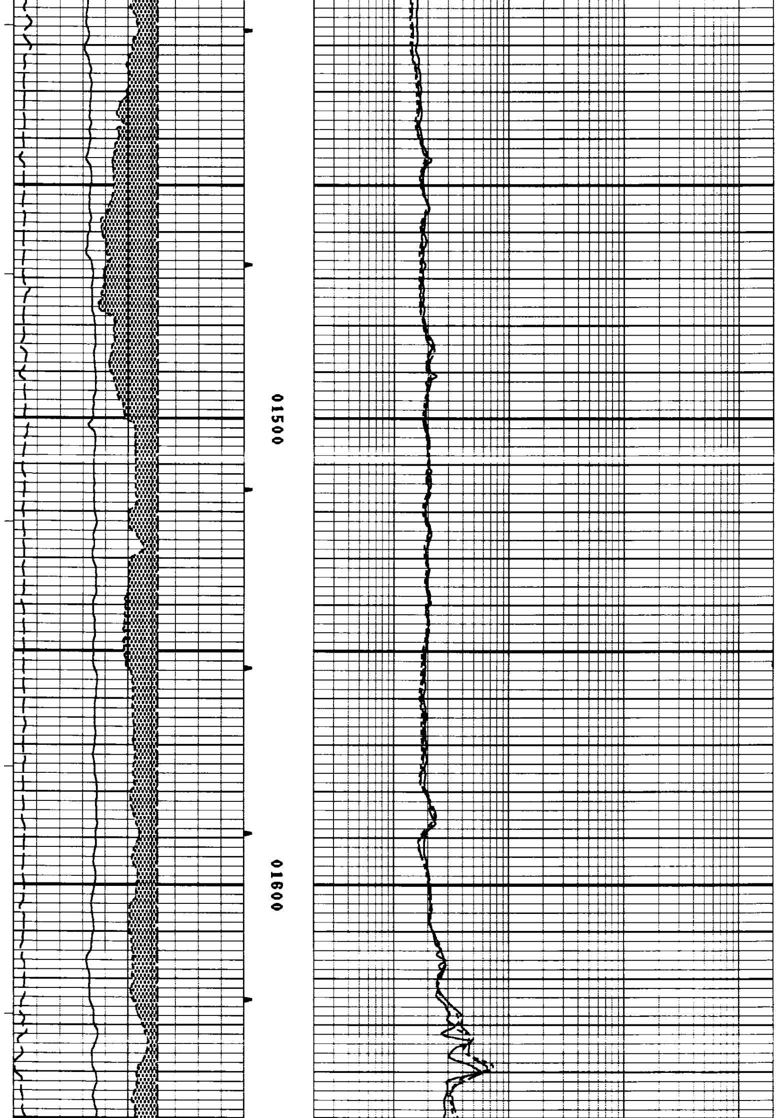


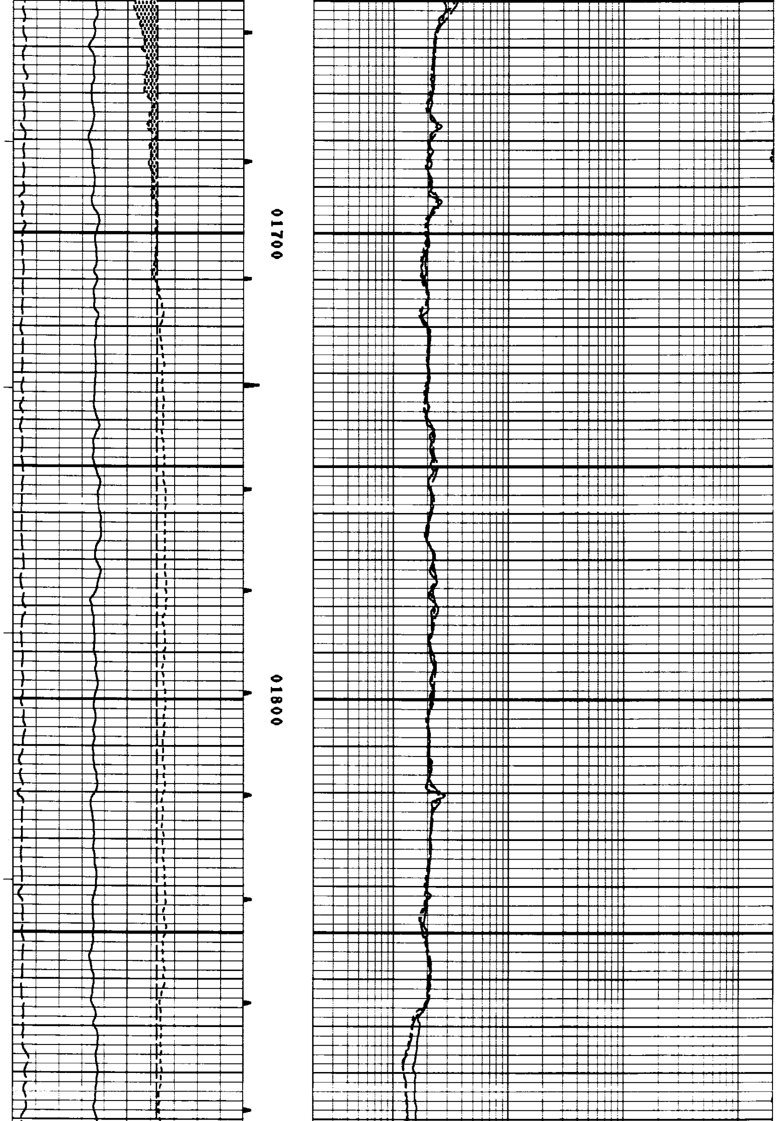


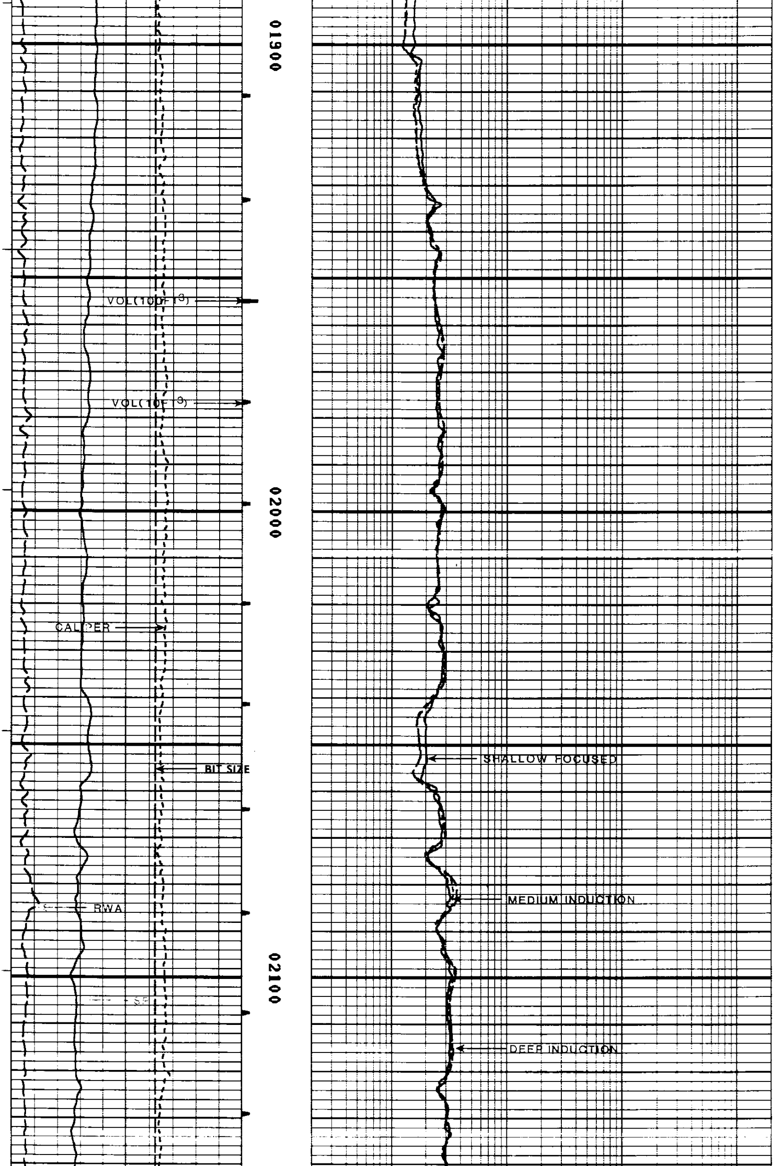


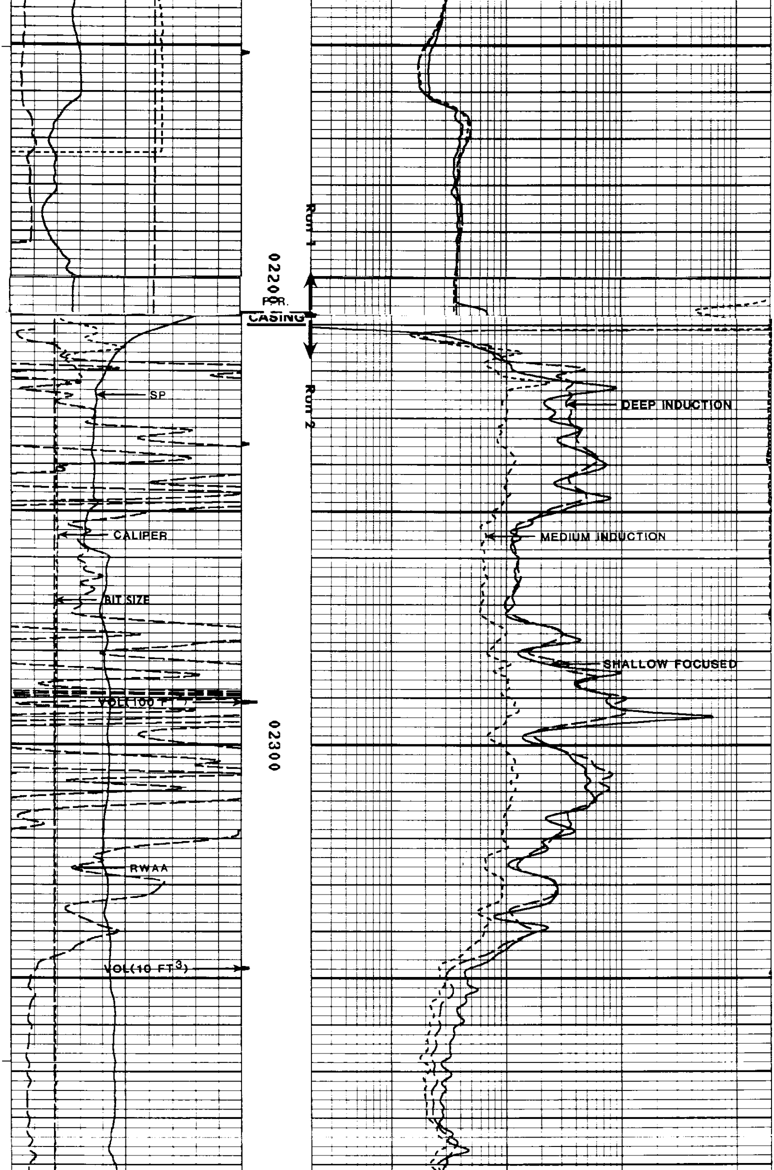


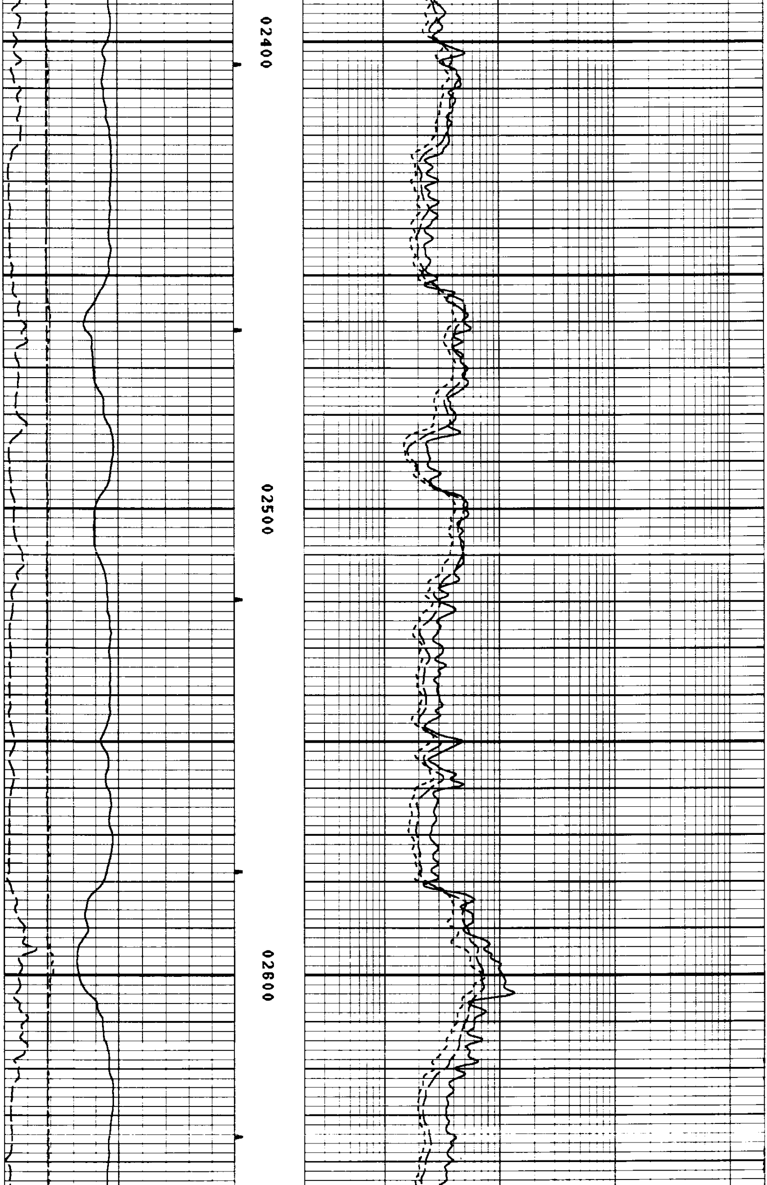


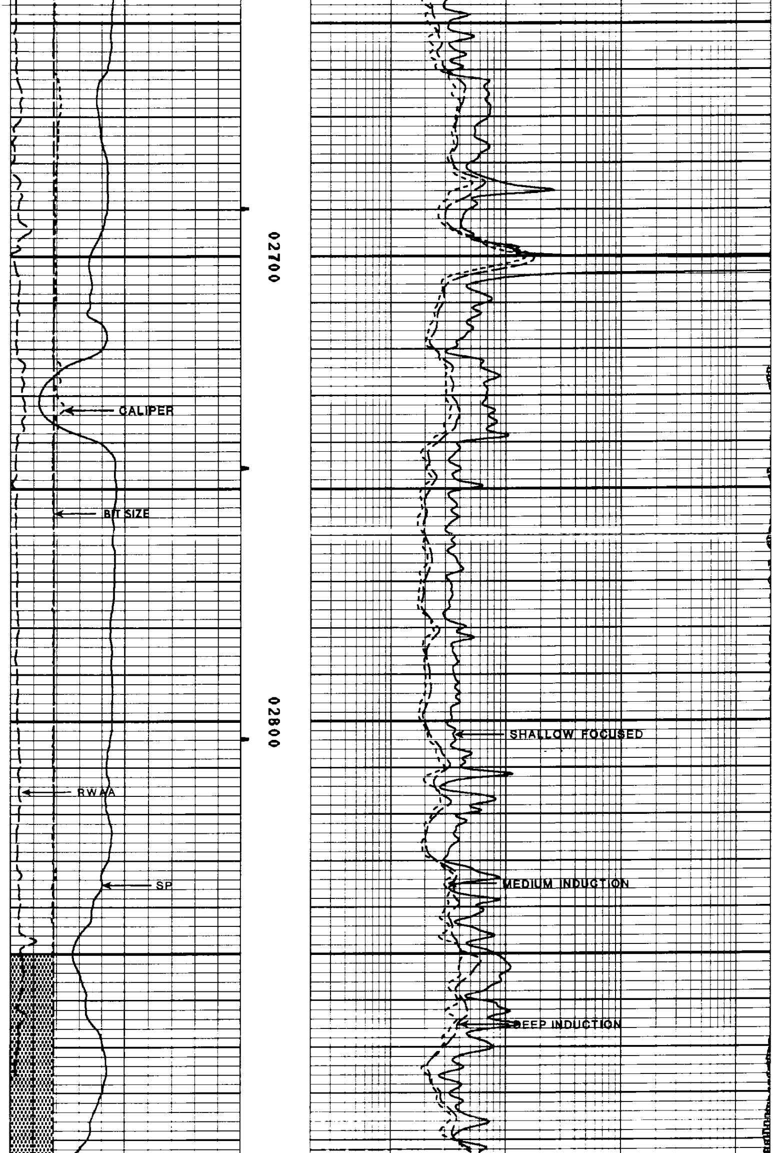


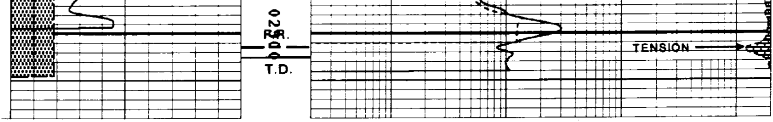












BIT(INCH)
6 16

VOL(CUFT)
0 30

RILD(OHMM)
0.2 2000

PWAA(OHMM)
0 15

RILM(OHMM)
0.2 2000

CAL(INCH)
6 16

RFOC(OHMM)
0.2 2000

SP(MV)
0 100

TEN(LBS)
5000 0

FILE: 3

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REPEAT SECTION

****

FILE: 2

PARAMETERS

NAME	DEPTH INTERVAL	VALUE	UNITS
A	2237 TO 1937	1.000	
DEL-T F	2237 TO 1937	189.000	MICS/FT
DEL-T M	2237 TO 1937	55.500	MICS/FT
DEL-T S	2237 TO 1937	100.000	MICS/FT
M	2237 TO 1937	2.000	
O.D.	2237 TO 1937	8.625	INCH
PORA	2237 TO 1937	WYLLIE	

DISPLAY SCALE CHANGES

*** NONE ***

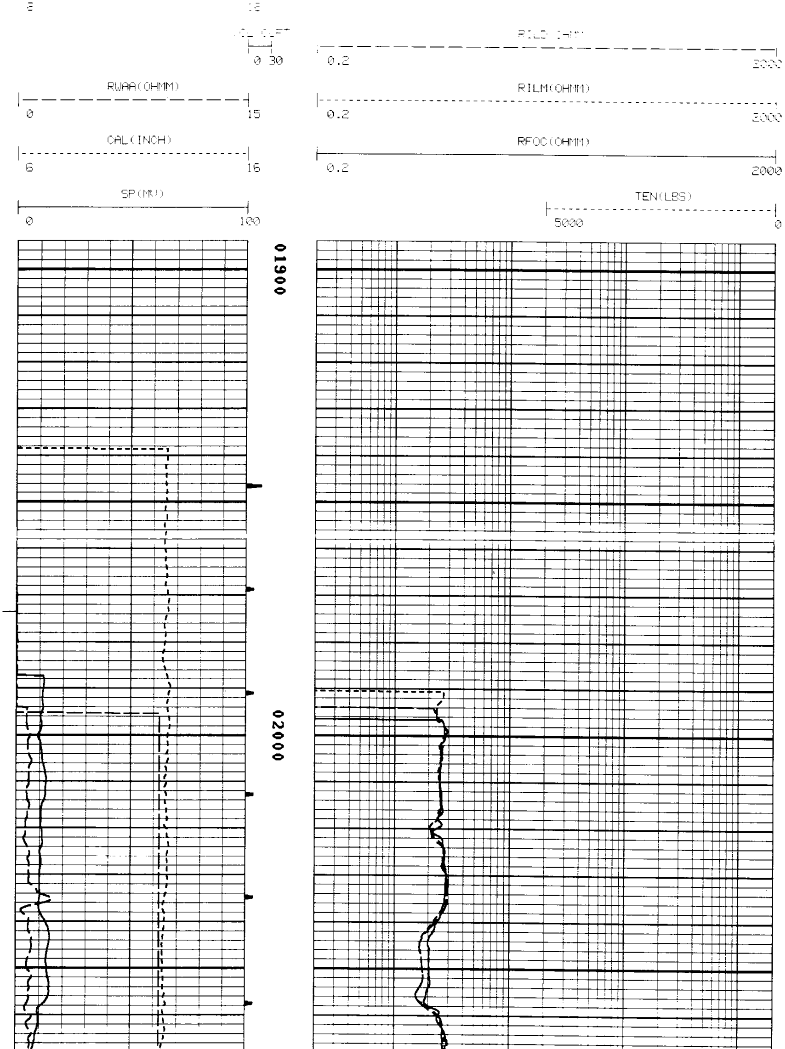
COMPANY: OREGON NATURAL GAS DEVELOPMENT CORP. RUN: 1

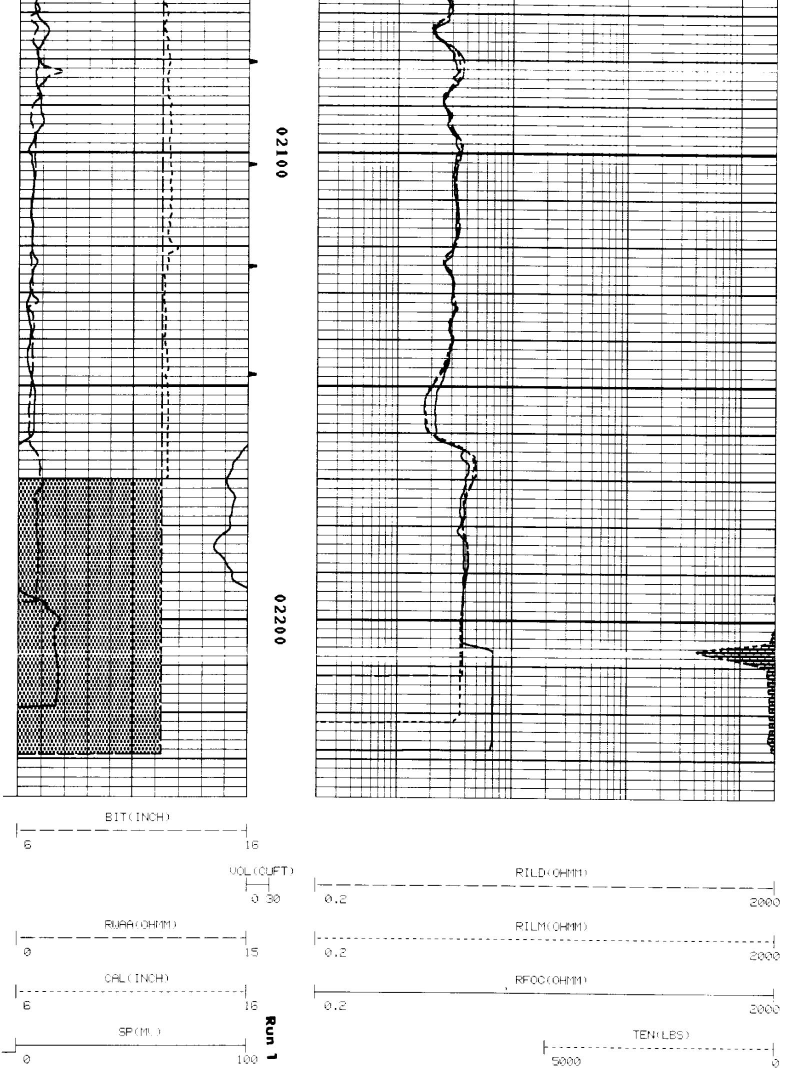
WELL NAME: [illegible] TRIP: 1

SERVICE: [illegible] FILE: 2 DATE: 09/24/81 TIME: 20:08:57

REVISION: [illegible] VER:2.0 MODE: PLAYBACK

BIT INCH





FILE: 2

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Run 2

REPEAT SECTION

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FILE: 2

CURVE DELAY REPORT

CURVE	PHYS. DELAY	UNITS
CFOC	0	FT.IN
CILM	6.0	FT.IN
CILD	9.3	FT.IN
SP	9.3	FT.IN
GR	48.3	FT.IN
CAL	58.0	FT.IN
ACO	31.9	FT.IN
AC	31.3	FT.IN

PARAMETERS

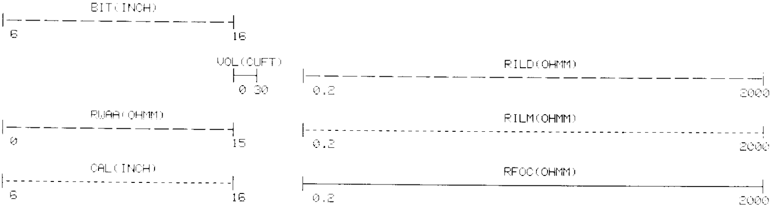
NAME	DEPTH INTERVAL	VALUE	UNITS
A	2925 TO 2553	1.000	
DEL-T F	2925 TO 2553	189.000	MICS/FT
DEL-T M	2925 TO 2553	55.500	MICS/FT
DEL-T S	2925 TO 2553	100.000	MICS/FT
M	2925 TO 2553	2.000	
O.D.	2925 TO 2553	5.500	INCH
PORA	2925 TO 2553	WYLLIE	

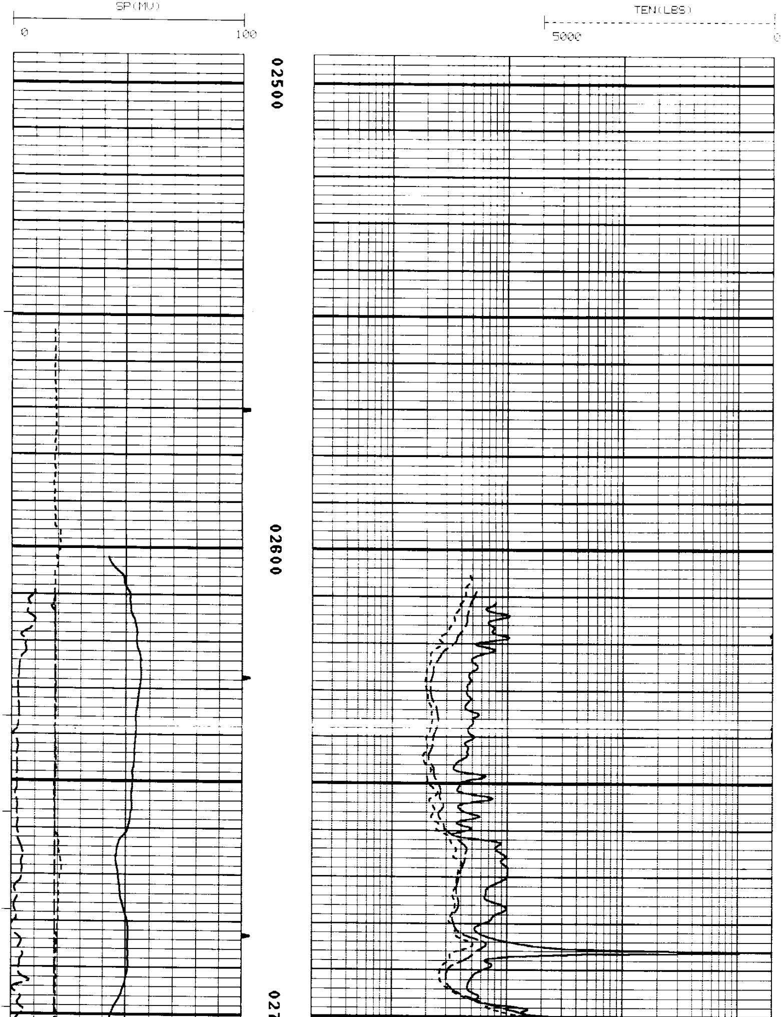
DISPLAY SCALE CHANGES

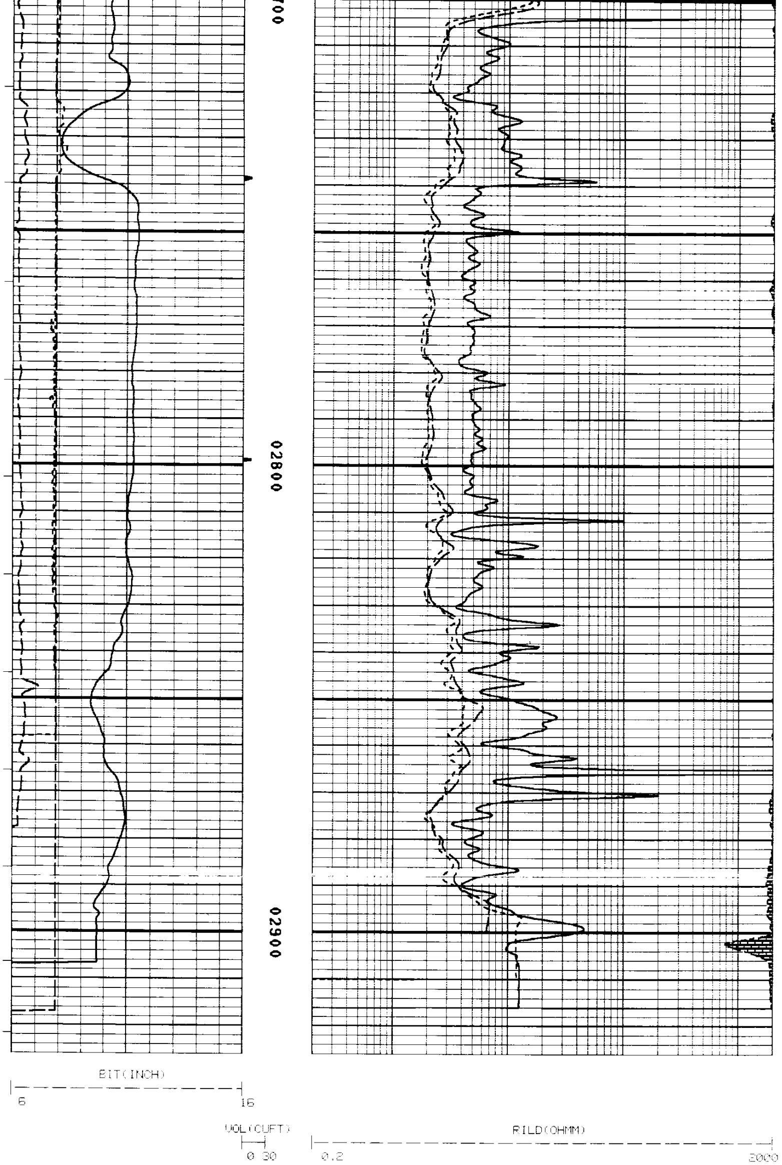
*** NONE ***

COMPANY: OREGON NATURAL GAS DEVELOPMENT CORP.
WELL NAME: I. W. 13b - 11
SERVICE: BK214M FILE: 2 DATE: 09/28/91
REVISION: FSYS256 REV:G002 VER:2.0

RUN: 2
TRIP: 1
TIME: 21:16:43
MODE: RECORD







RWAA(OHMM) 0 15

RILM(OHMM) 0.2 2000

CAL(INCH) 6 16

RFOC(OHMM) 0.2 2000

SP(MV) 0 100

TEN(LBS) 5000 0

FILE: 3

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REPEAT SECTION

****

FILE: 4

CURVE DELAY REPORT

CURVE	PHYS. DELAY	UNITS
CFOC	0	FT,IN
CILM	6.0	FT,IN
CILD	9.3	FT,IN
SP	9.3	FT,IN
GR	48.3	FT,IN
CAL	58.0	FT,IN
ACQ	31.9	FT,IN
AC	31.9	FT,IN

PARAMETERS

NAME	DEPTH INTERVAL	VALUE	UNITS
A	2451 TO 2143	1.000	
DEL-T F	2451 TO 2143	189.000	MICS/FT
DEL-T M	2451 TO 2143	55.500	MICS/FT
DEL-T S	2451 TO 2143	100.000	MICS/FT
M	2451 TO 2143	2.000	
O.D.	2451 TO 2143	5.500	INCH
PORA	2451 TO 2143	WYLLIE	

DISPLAY SCALE CHANGES

*** NONE ***

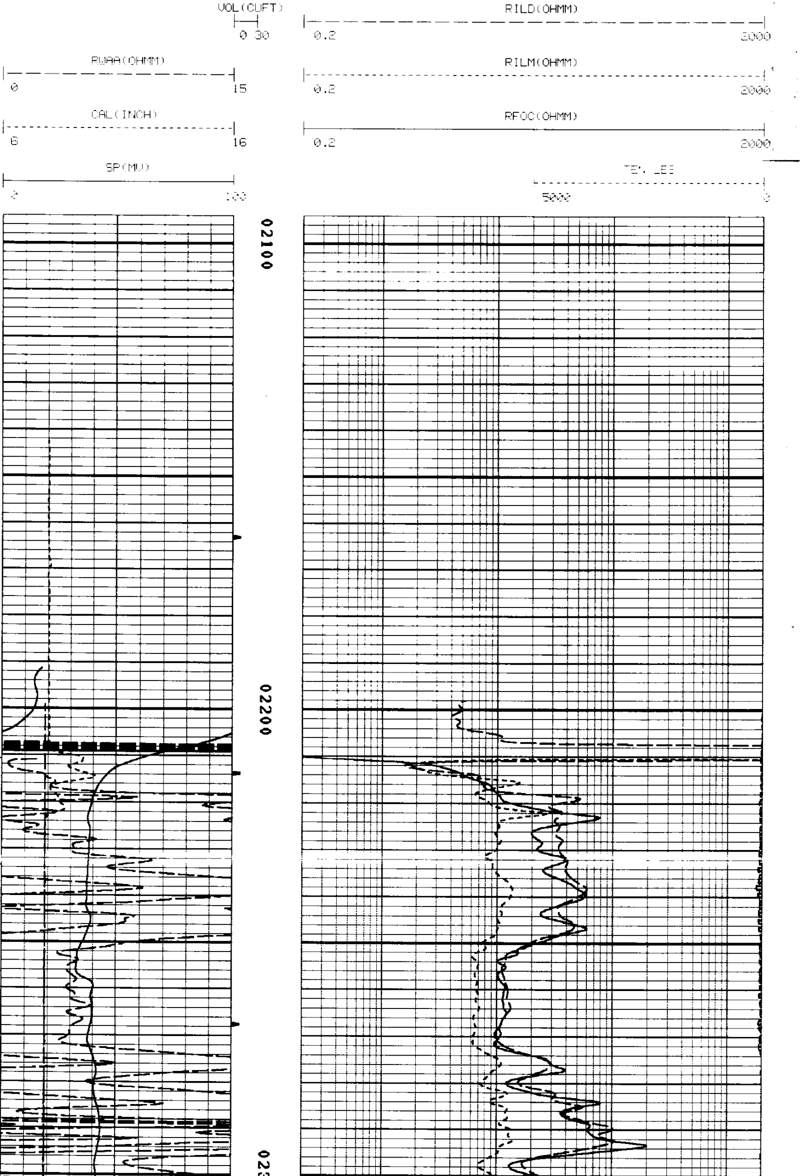
COMPANY: OREGON NATURAL GAS DEVELOPMENT CORP. RUN: 2

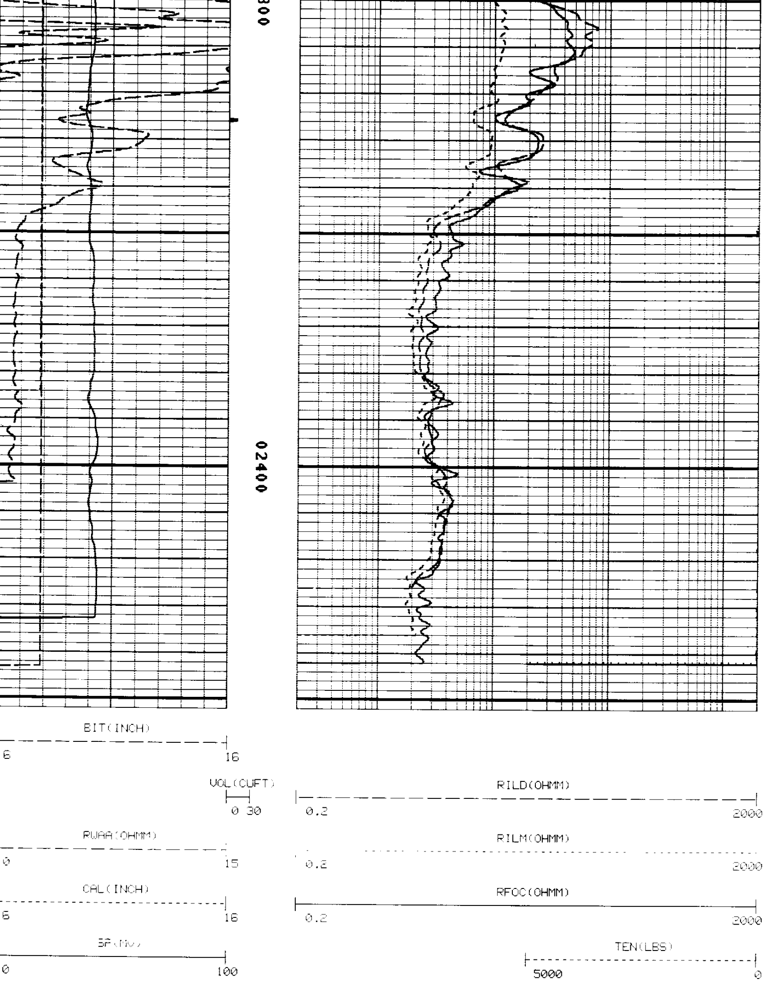
WELL NAME: I. W. 13b - 11 TRIP: 1

SERVICE: BK214M FILE: 4 DATE: 09/28/91 TIME: 22:22:35

REVISION: FSYS256 REV:G002 VER:2.0 MODE: RECORD

BIT(INCH) 6 16





FILE: 4

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                  *                                       *
                  *  CALIBRATION/VERIFICATION SUMMARIES   *
                  *  DATE 09/28/91          TIME 23:58:11 *
                  *  RUN  2                 TRIP 1        *
                  *                                       *
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        LOG NAME DIFL    ASSET NO. 72372     UNIT NO. HL 6399
   CALIBRATION ENTERED ON  09/28/91 AT 18:58:42

CURVE    MILLIVOLTS       SCALING FACTORS     ENGINEERING VALUES    UNITS
          LOW    HIGH     ADD.     MULT.         LOW        HIGH
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      DATE 09/19/91          CALIBRATION          TIME 08:04:17

CILD      -1.0   483.1    1.340    2.0137        0.500     500.000 MMHO
CILM      -0.4   485.0    0.814    2.3227        0.500     500.000 MMHO
CFOC       4.7   501.2   -3.788    2.4533        1.000     500.000 MMHO

      DATE 09/19/91    PRIMARY  VERIFICATION      TIME 08:11:27

CILD      -0.5   487.5    1.340    2.0137        0.358     504.775 MMHO
CILM       0.0   487.4    0.814    2.3227        0.348     502.631 MMHO
CFOC       5.1   522.5   -3.788    2.4533        1.227     522.377 MMHO

      DATE 09/28/91   BEFORE LOG  VERIFICATION    TIME 20:54:27

CILD      -0.4   484.8    1.273    2.0262        0.958     504.775 MMHO
CILM      -0.0   487.1    0.965    2.3429        0.841     502.832 MMHO
CFOC       5.3   522.7   -3.977    2.4283        1.337     522.377 MMHO

      DATE 09/28/91    AFTER LOG VERIFICATION     TIME 22:20:47

CILD      -0.3   485.4    1.273    2.0262        0.985     505.842 MMHO
CILM       0.1   483.6    0.965    2.3429        1.099     503.176 MMHO
CFOC       5.7   532.2   -3.977    2.4292        1.740     525.839 MMHO


        LOG NAME GR      ASSET NO. 60519     UNIT NO. HL 6399
   CALIBRATION ENTERED ON  09/28/91 AT 18:59:56

CURVE   COUNTS/SEC.       SCALING FACTORS     ENGINEERING VALUES    UNITS
          LOW    HIGH     ADD.     MULT.         LOW        HIGH
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      DATE 09/19/91          CALIBRATION          TIME 16:43:20

GR         63.2   257.2    0.000    0.7729       0.000     150.000 API

      DATE 09/19/91    PRIMARY VERIFICATION       TIME 16:47:12

GR         63.0   254.1    0.000    0.7729      43.273     196.355 API

      DATE 09/28/91   BEFORE LOG  VERIFICATION    TIME 13:10:50

GR         50.2   246.3    0.000    0.7729      38.938     190.365 API

      DATE 09/28/91    AFTER LOG VERIFICATION     TIME 23:20:08

GR         61.3   256.5    0.000    0.7729      47.379     198.229 API


        LOG NAME CAL     ASSET NO. 55718     UNIT NO. HL 6399
   CALIBRATION ENTERED ON  09/28/91 AT 19:00:32

CURVE    MILLIVOLTS       SCALING FACTORS     ENGINEERING VALUES    UNITS
          LOW    HIGH     ADD.     MULT.         LOW        HIGH
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      DATE 09/19/91          CALIBRATION          TIME 16:14:46

CAL     4591.9 11166.3    1.412    0.0033        7.000      15.000 INCH

                       PRIMARY VERIFICATION            NOT DONE

      DATE 09/28/91   BEFORE LOG VERIFICATION     TIME 20:50:07

CAL       E      5159.0    1.662    0.0033        E            7.940 INCH

      DATE 09/28/91    AFTER LOG VERIFICATION     TIME 22:36:25

CAL       E      5150.9    1.662    0.0033        E            7.930 INCH
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