



**Weatherford**<sup>®</sup>

**MICRORESISTIVITY LOG**

COMPANY

REDLAND RESOURCES, INC.

WELL

HUMPHREYS #6-2

FIELD

WILDCAT

PROVINCE/COUNTY

HODGEMAN

COUNTRY/STATE

U.S.A. / KANSAS

LOCATION

1252' FNL & 2336' FEL

SEC

TWP

RGE

Other Services  
MAI/MFE  
MSS

MPD/MDN

6

24S

24W

API Number

15-083-21797

Permit Number

Permanent Datum GL, Elevation 2498 feet

Log Measured From KB

Elevations:  
KB 2506.00  
DF 2504.00  
GL 2498.00

Drilling Measured From KB

Date

03-AUG-2012

Run Number

ONE

Depth Driller

4950.00

feet

Depth Logger

4941.00

feet

First Reading

4895.00

feet

Last Reading

4600.00

feet

Casing Driller

222.00

feet

Casing Logger

221.00

feet

Bit Size

7.875

inches

Hole Fluid Type

CHEMICAL

Density / Viscosity

9.55 lb/USg

50.00 CP

PH / Fluid Loss

9.50

15.20 ml/30Min

Sample Source

MUDPIT

Rm @ Measured Temp

0.67 @ 91.0

ohm-m

Rmf @ Measured Temp

0.54 @ 91.0

ohm-m

Rmc @ Measured Temp

0.80 @ 91.0

ohm-m

Source Rmf / Rmc

CALC

CALC

Rm @ BHT

0.56 @ 111.0

ohm-m

Time Since Circulation

4 HOURS

deg F

Max Recorded Temp

111.00

deg F

Equipment Name

COMPACT

Equipment / Base

13096

LIB

Recorded By

ADAM SILL

Witnessed By

MIKE POLLOK

S.O. # / JOB #

3534510

MATT MAYES

LB12-201

**BOREHOLE RECORD**

Last Edited: 03-AUG-2012 15:27

Bit Size inches	Depth From feet	Depth To feet
7.875	222.00	4950.00

**CASING RECORD**

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	222.00	24.00

**REMARKS**

- SOFTWARE ISSUE: WLS 13.02.6600.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RAN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  - 0.5 INCH STANDOFF USED ON MFE.
  - TWO 0.5 INCH STANDOFFS USED ON MSS.
  - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING: 83 CU. FT.
- SERVICE ORDER # 3534510.

- RIG: DUKE #2.

- ENGINEER: A. SILL.

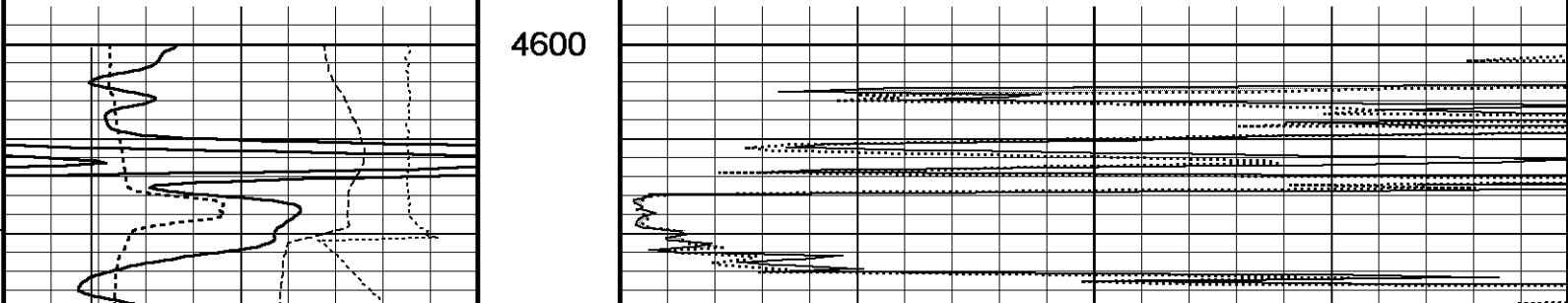
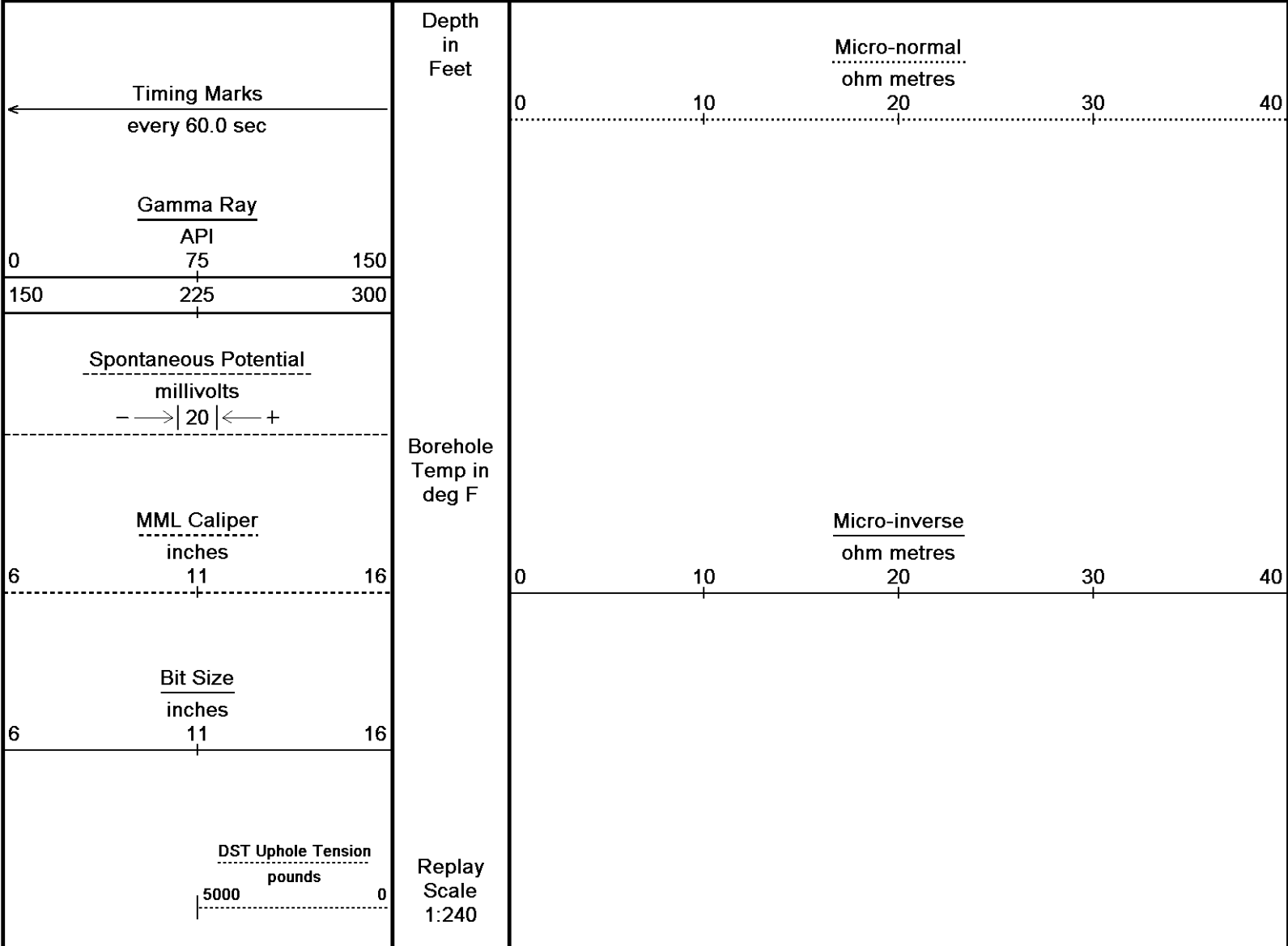
- OPERATOR(S): R. VENEGAS.

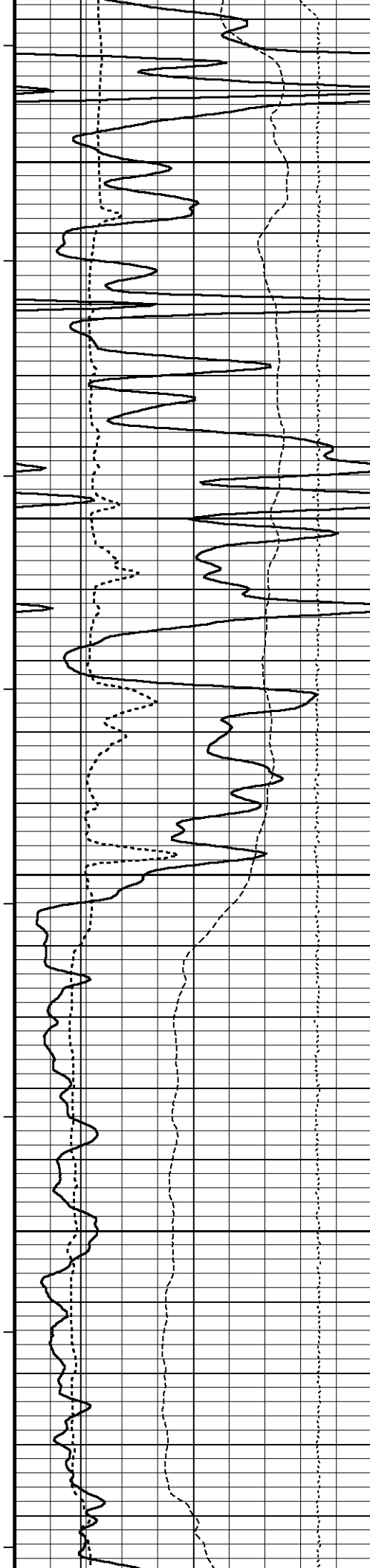
\*\*\*\* PULLED TIGHT AT 4600 FT. ON REPEAT PASS CAUSING CALIPER ARM TO BEND AND WAS INSTRUCTED TO DISCONTINUE LOGGING. \*\*\*\*

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 wilful 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 in our price schedule.

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm  
Plotted on 03-AUG-2012 19:55  
Filename: C:\Minimus 13.02.6600\Data\Redland Humphreys #6-2\Redland Humphreys #6-2\_001.dta  
Recorded on 03-AUG-2012 17:34  
System Versions: Logged with 13.02.6600 Plotted with 13.02.6600





108°

4650

109°

4700

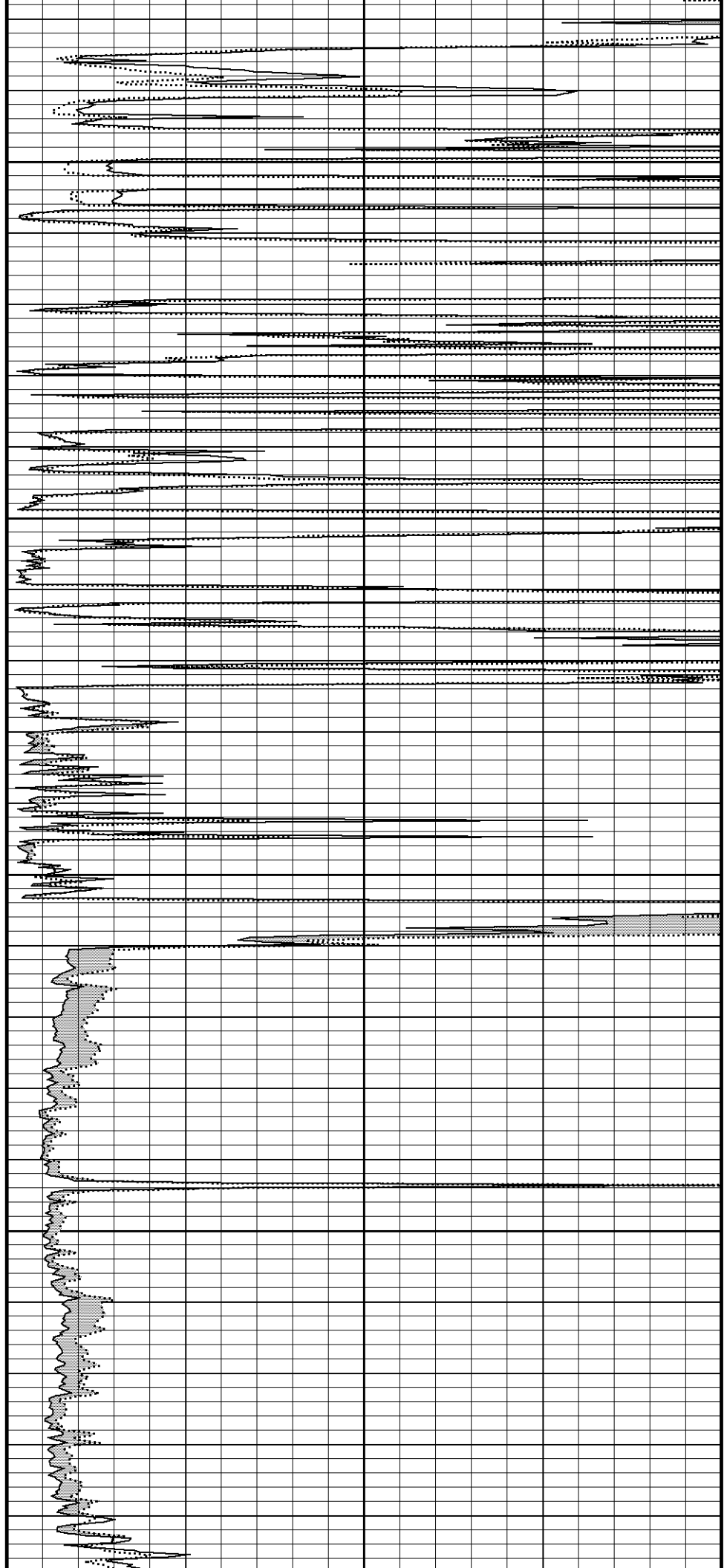
110°

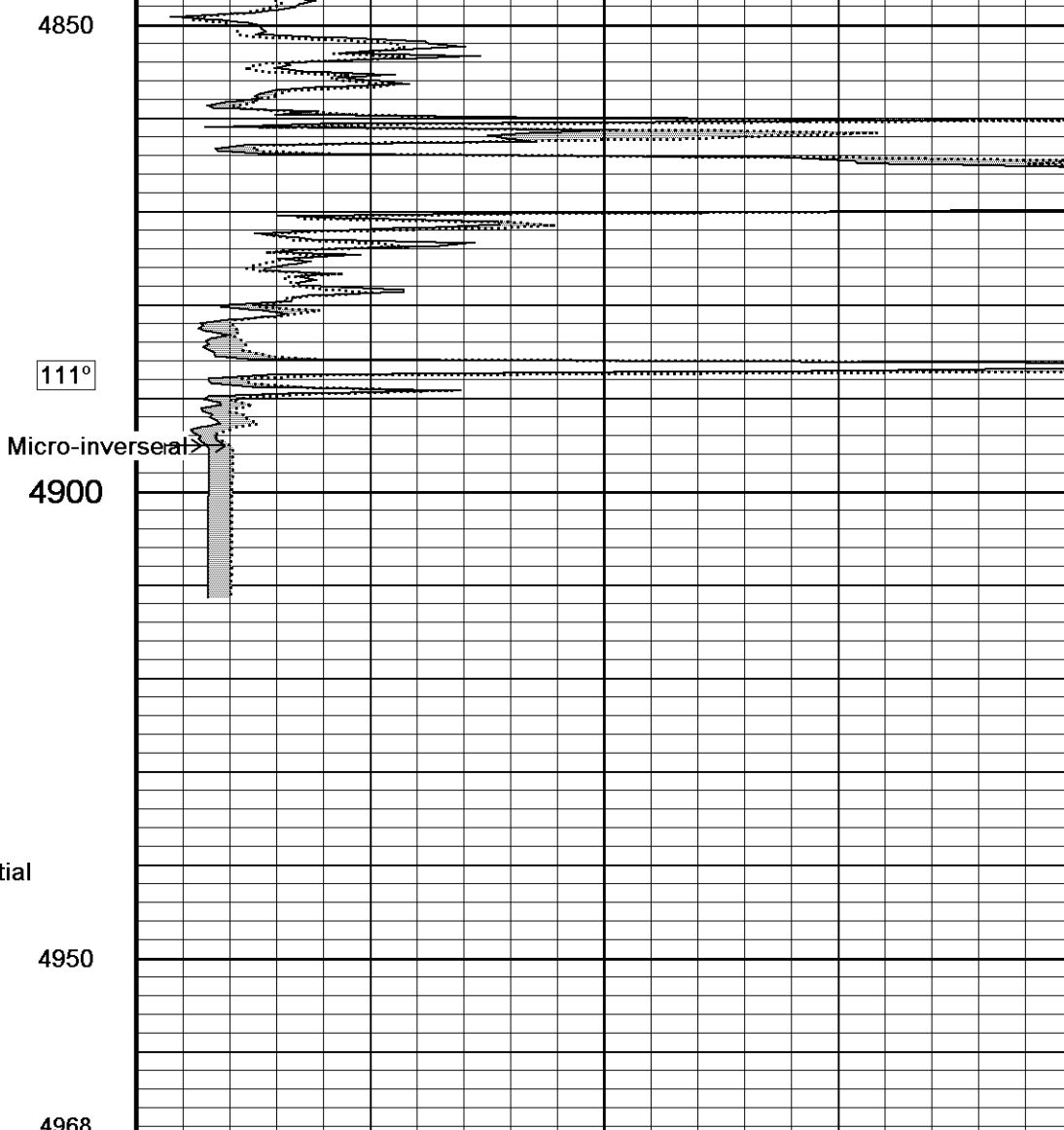
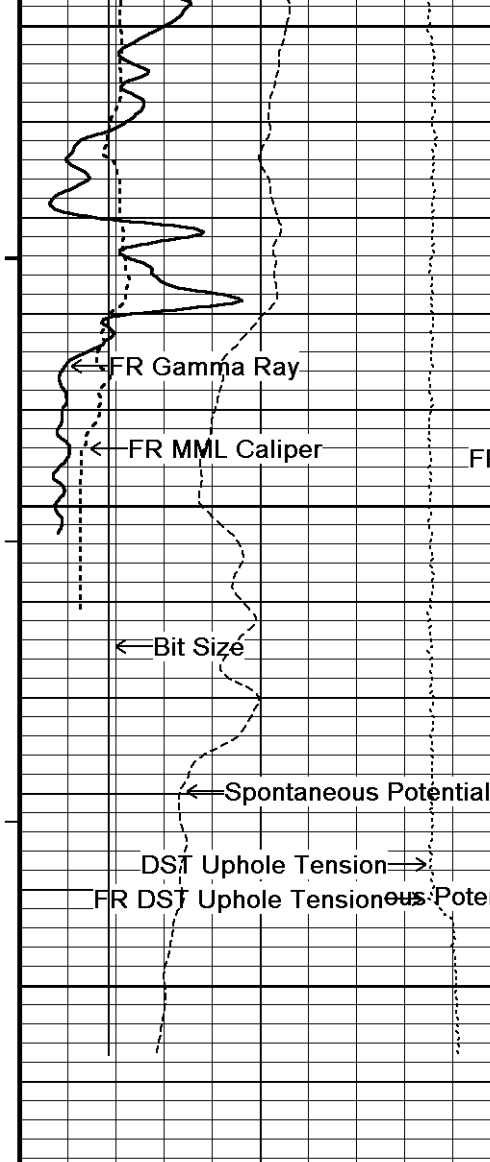
4750

111°

4800

111°





Timing Marks  
every 60.0 sec

Gamma Ray  
API  
0      75      150  
150    225    300

Spontaneous Potential  
millivolts  
- -> | 20 | <- +

MML Caliper  
inches  
6      11      16

Bit Size  
inches  
6      11      16

Depth in Feet

Micro-normal  
ohm metres

0      10      20      30      40

Borehole Temp in deg F

Micro-inverse  
ohm metres

0      10      20      30      40

DST Uphole Tension  
pounds  
5000 0

Replay  
Scale  
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 03-AUG-2012 19:55  
 Filename: C:\Minimus 13.02.6600\Data\Redland Humphreys #6-2\Redland Humphreys #6-2\_001.dta Recorded on 03-AUG-2012 17:34  
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5 INCH MAIN



### BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\Redland Humphreys #6-2\Redland Humphreys #6-2\_001.dta

General Constants All 000

Last Edited on 03-AUG-2012,15:34

#### General Parameters

Mud Resistivity	0.670	ohm-metres
Mud Resistivity Temperature	91.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	

#### Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	None	

#### Rwa Parameters

Porosity used	Base Density Porosity
Resistivity used	Array Ind. Four Res Rt
RWA Constant A	0.610
RWA Constant M	2.150

Gamma Calibration MCG-D.K 442

Field Calibration on 03-AUG-2012 11:08

	Measured	Calibrated (API)
Background	71	48
Calibrator (Gross)	1154	773
Calibrator (Net)	1083	725

Gamma Constants MCG-D.K 442

Last Edited on 03-AUG-2012,15:34

Gamma Calibrator Number	GRC38	
Mud Density	1.15	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 17-JUL-2012,16:35

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-D.K 442

Last Edited on

Pre-filter Length	11
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Caliper Calibration MML-A 16

Base Calibration on 17-JUL-2012 16:12  
Field Calibration on 03-AUG-2012 10:57

#### Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14596	5.98
2	17798	7.97
3	21110	9.86
4	25111	11.92

5  
6

0  
N/A

0.00  
N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.96	5.98

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 17-JUL-2012 16:16  
Field Check on 03-AUG-2012 10:51

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.6	78.3	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.2	48.2

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 03-AUG-2012,15:34

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159		
Micro Normal K Factor	1.0000		
Micro Inverse K Factor	1.0000		
Standoff Offset	N/A	inches	

### DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Redland Humphreys #6-2\Redland Humphreys #6-2\_001.dta

Compact Comms Gamma  
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log  
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

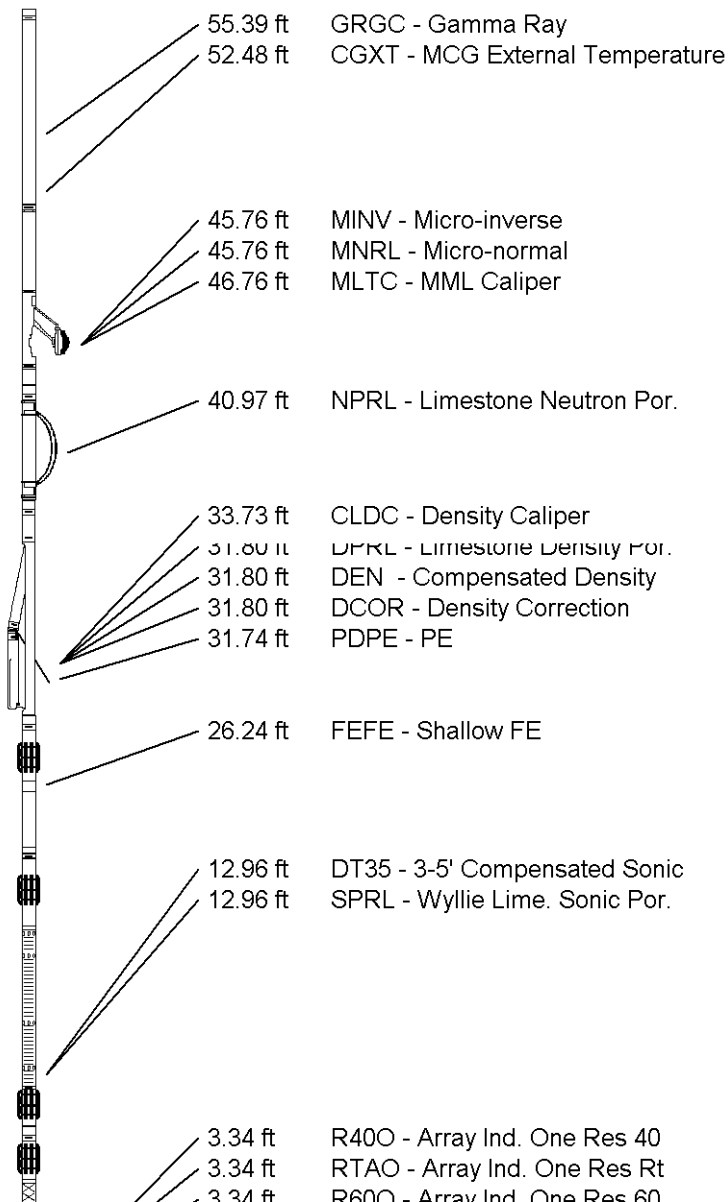
Compact Neutron  
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper  
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

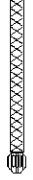
Compact Focussed Electric  
MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic  
MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction  
MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in



Total Length: 60.68 ft Weight: 456.4 lb



0.34 ft RSGG - Array Ind. One Res Co  
0.23 ft SPCG - Spontaneous Potential  
Tool Zero (0.13ft from bottom)  
-0.13 ft SMTU - DST Uphole Tension  
All measurements relative to tool zero.

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WELL HUMPHREYS #6-2  
FIELD WILDCAT  
PROVINCE/COUNTY HODGEMAN  
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2506.00	feet	First Reading	4895.00	feet
Elevation Drill Floor	2504.00	feet	Depth Driller	4950.00	feet
Elevation Ground Level	2498.00	feet	Depth Logger	4941.00	feet



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MICRORESISTIVITY LOG