SUPERIOR WELL SERVICES

SUPERIOR
Mercer, PA
Shelocta, PA
Owego, NY
Buckhannon, WV
Painstville, KY

GAMMA RAY / NEUTRON
LITHO DENSITY/TEMPERATURE
ACOUSTIC SURVEY
INDUCTION

Company	HAUGHT ENERGY CORPORATION
Well	W-1622
Field	MURPHY
County	RITCHIE
State	WV

Company HAUGHT ENERGY CORPORATION

Well W-1622

Field MURPHY

County RITCHIE **State** WV

Location: API #: 47-085-09915

QUADRANGLE : SMITHVILLE

SEC TWP RGE

Other Services
TIF
LAS
TEMP

Permanent Datum — Elevation 1020'
Log Measured From TOP OF K.B.
Drilling Measured From

Elevation
K.B. 1027'
D.F. 1024'
G.L. 1020'

Date	14-APRIL-2011		
Run Number	ONE		
Depth Driller	5840'		
Depth Logger	5846'		
Bottom Logged Interval	5846'		
Top Log Interval	45'		
Casing Driller	7" @ 2144'		
Casing Logger	7" @ 2126'		
Bit Size	6.375"		
Type Fluid in Hole	AIR		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	N/A		
Rm @ Meas. Temp	N/A		
Rmf @ Meas. Temp	N/A		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	N/A		
Rm @ BHT	N/A		
Time Circulation Stopped	N/A		
Time Logger on Bottom	4 HRS		
Maximum Recorded Temperature	102°		
Equipment Number	3195		
Location	SHELOCTA PA		
Recorded By	ERIC LINGENFELTER		
Witnessed By	DOUGH HAUGHT		

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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 interpretation, 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 set out in our current Price Schedule.

Comments

Matrix Density : 2.71 g/cc
Fluid Density : 1.0 g/cc

* All Presentations And Logging Speeds At Customer Request *
* Presented Downhole Temperature On Final Logs *
Crew : Eric Lutz, Alan Kilgore
Rig On Location: TDC DRILLING

* All Logs Measured From Top Of K.B *
* THANK YOU FOR USING SUPERIOR WELL SERVICES *

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MAIN LOG

Database File:	14-april-2011 haught energy w-1622.db
Dataset Pathname:	pass4.3B
Presentation Format:	dntstack
Dataset Creation:	Thu Apr 14 10:42:17 2011
Charted by:	Depth in Feet scaled 1:240

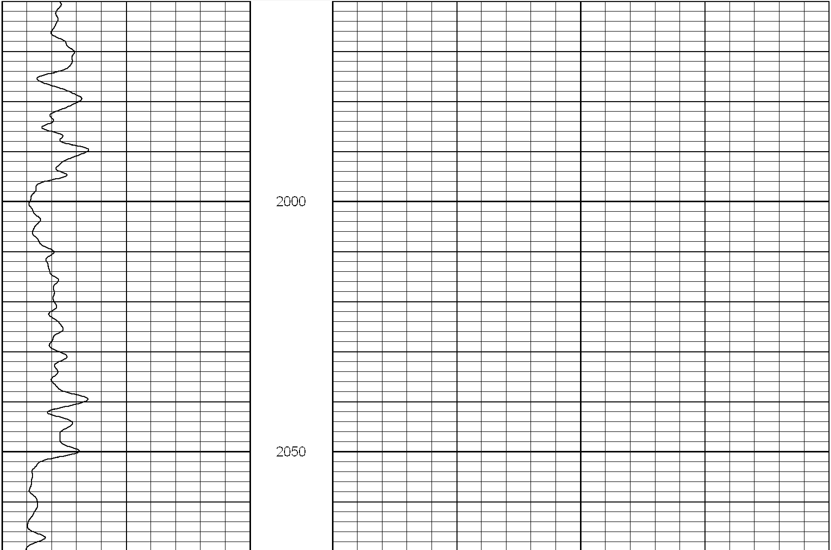
Left	Name	Right
0	Gamma Ray (GAPI)	200
5	BOREID (in)	15
5	DCAL (in)	15
20000	LTEN (lb)	0
-0.25	DTMP2 (degF)	0.25

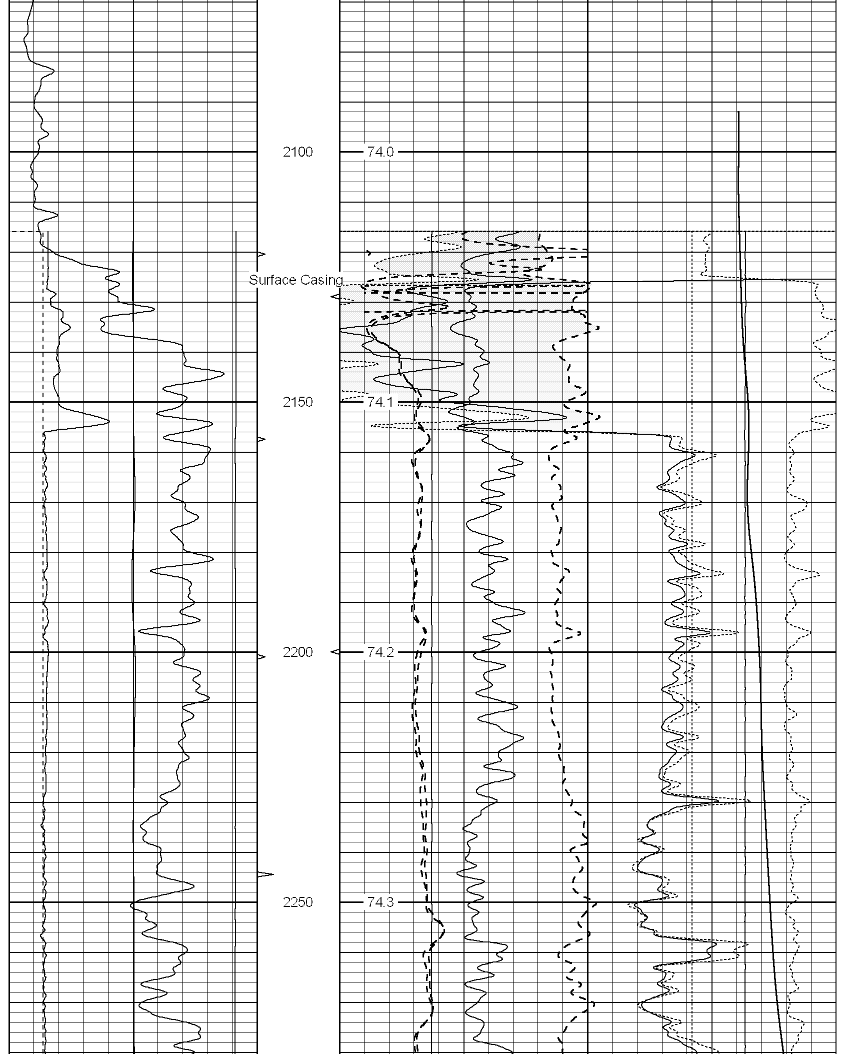
TBHV
ABHV

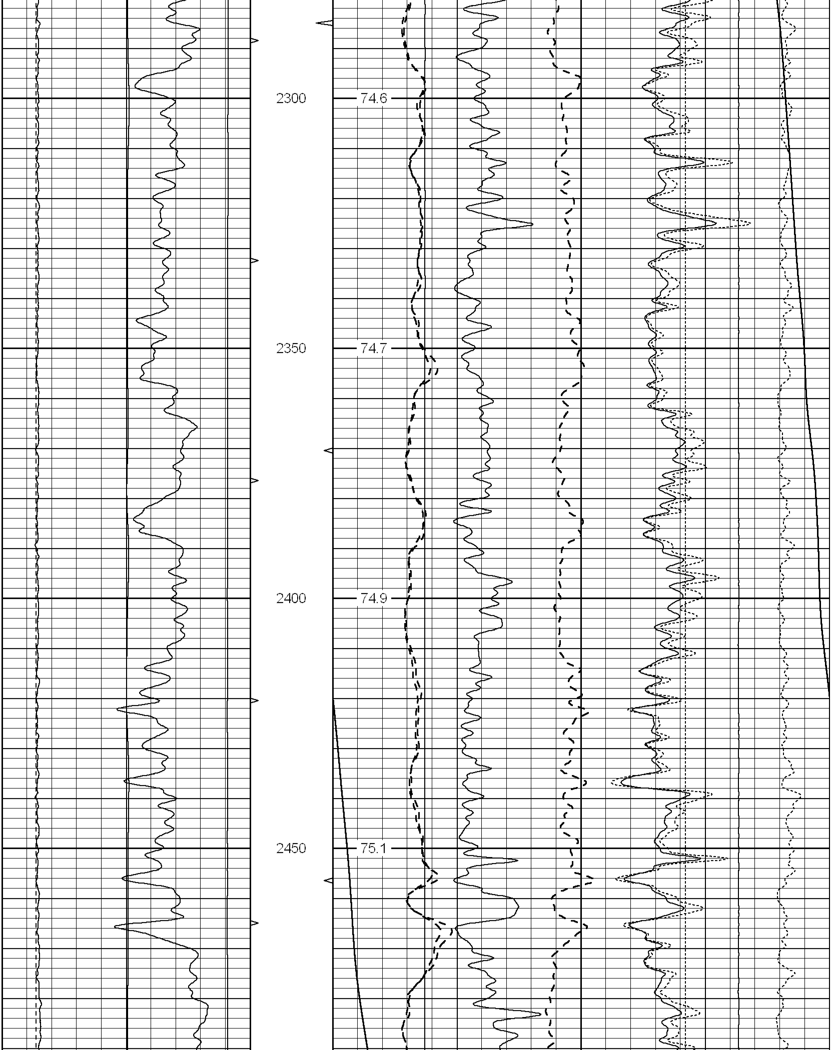
Left	Name	Right
2	Bulk Density (g/cc)	3
30	Density Porosity (pu)	-10
30	Neutron Porosity (pu)	-10
2	MATRXDEN (g/cc)	3
0	RILD (Ohm-m)	100
-0.9	Correction (g/cc)	0.3
0	PE	10
65	TEMP2 (degF)	70
0	RILM (Ohm-m)	100
100	LoNoise (V)	0
0	UpNoise (V)	100

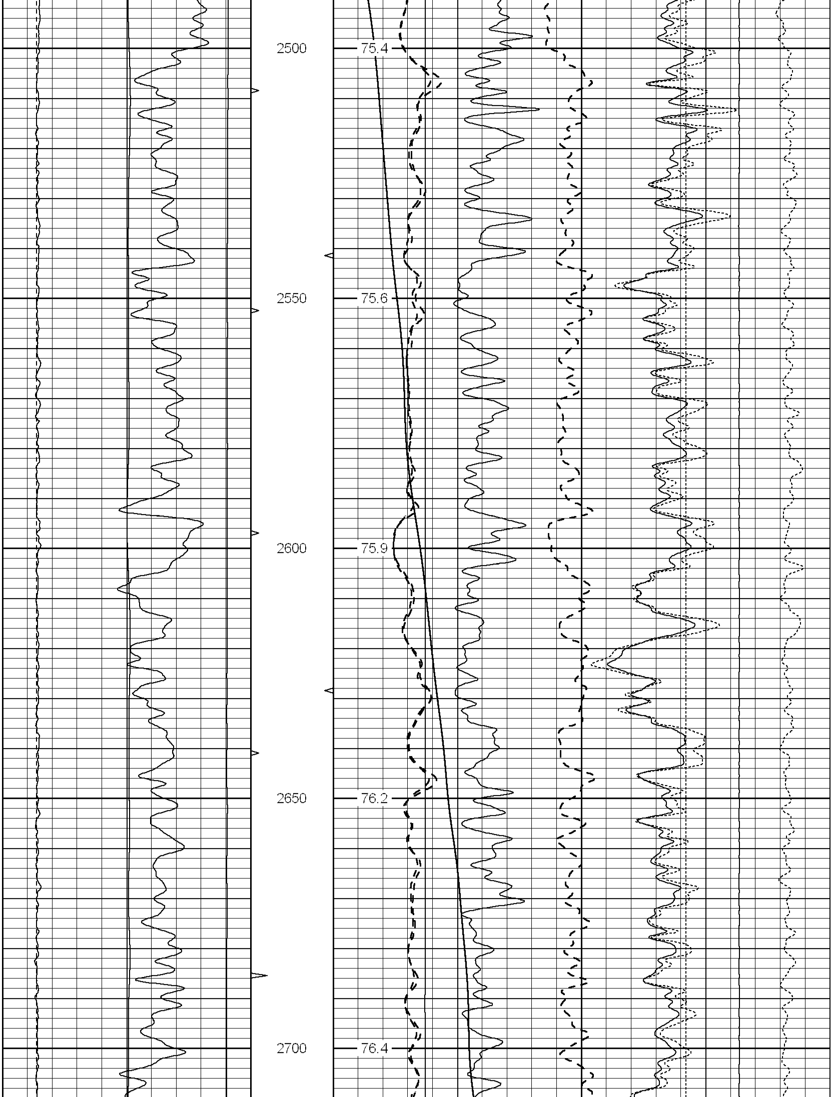
TEMP2
(degF)

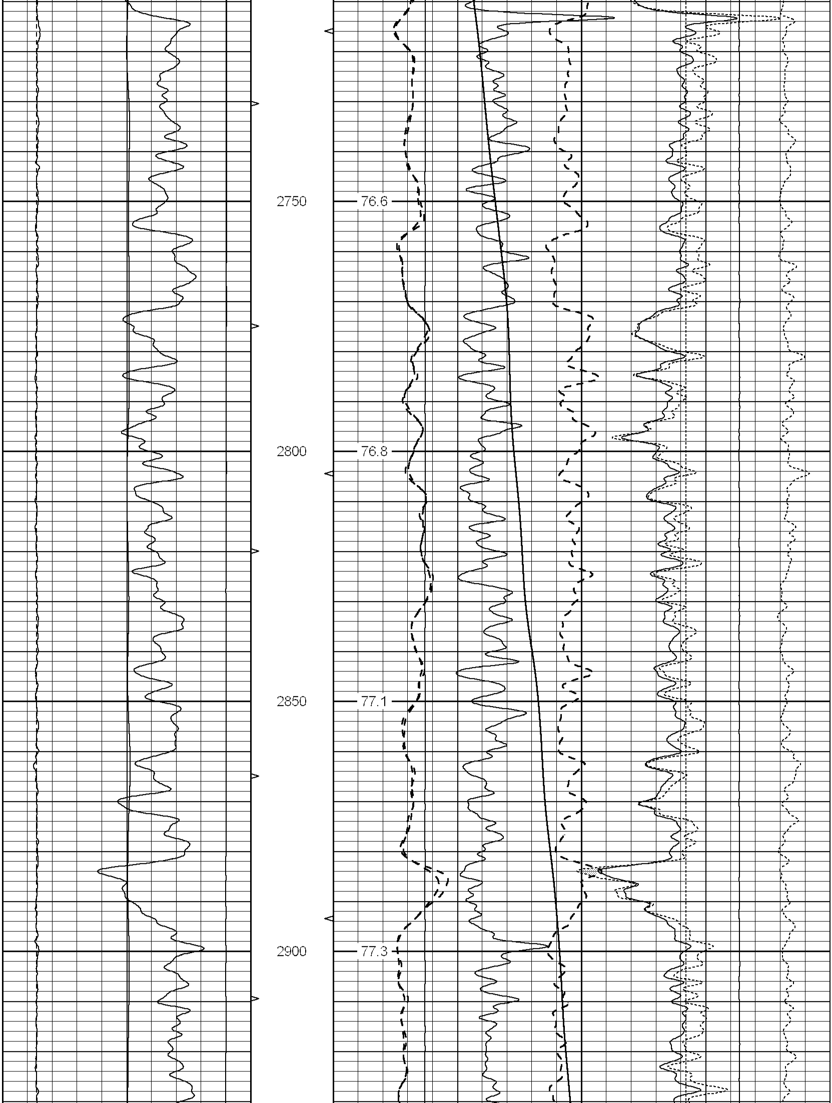
Left	Name	Right
100	RILD (Ohm-m)	1000
100	RILM (Ohm-m)	1000

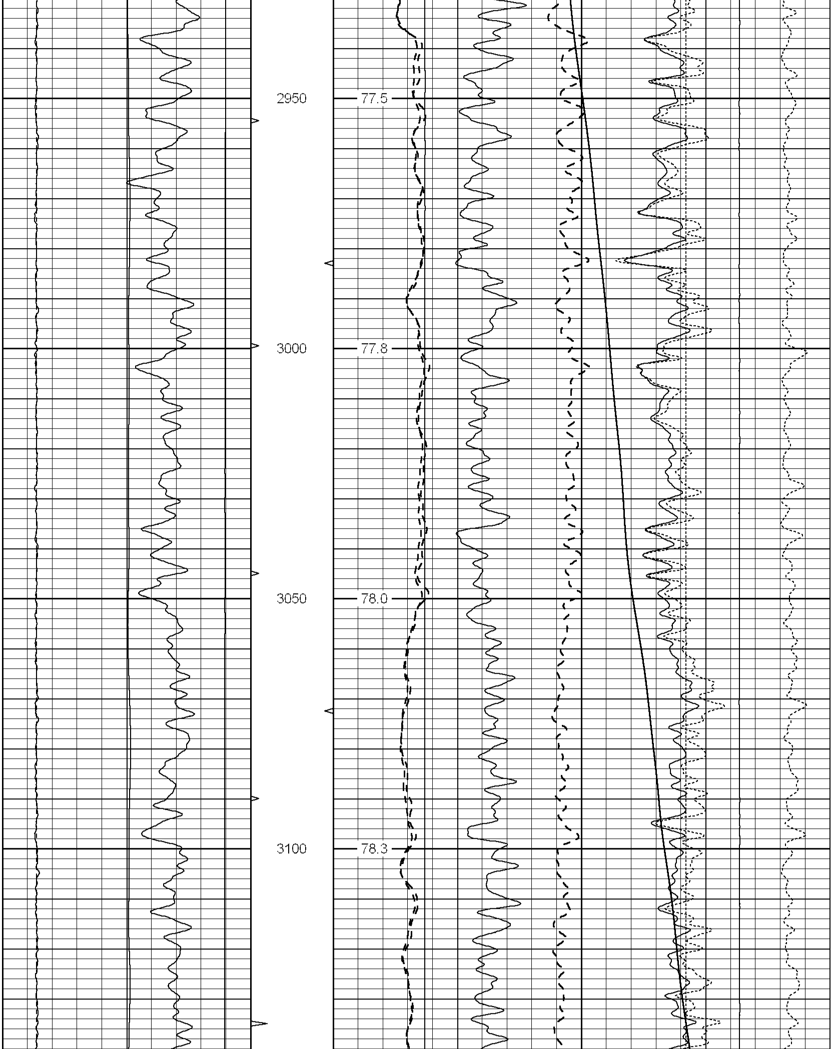


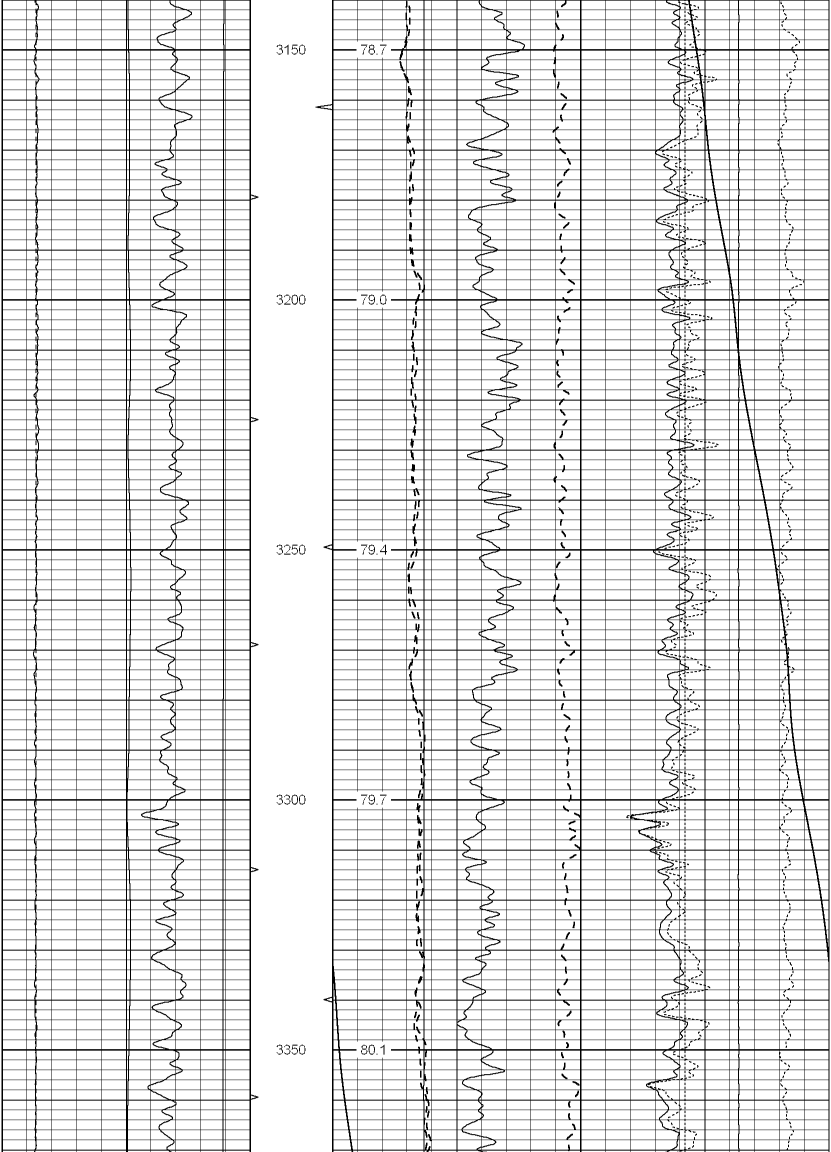


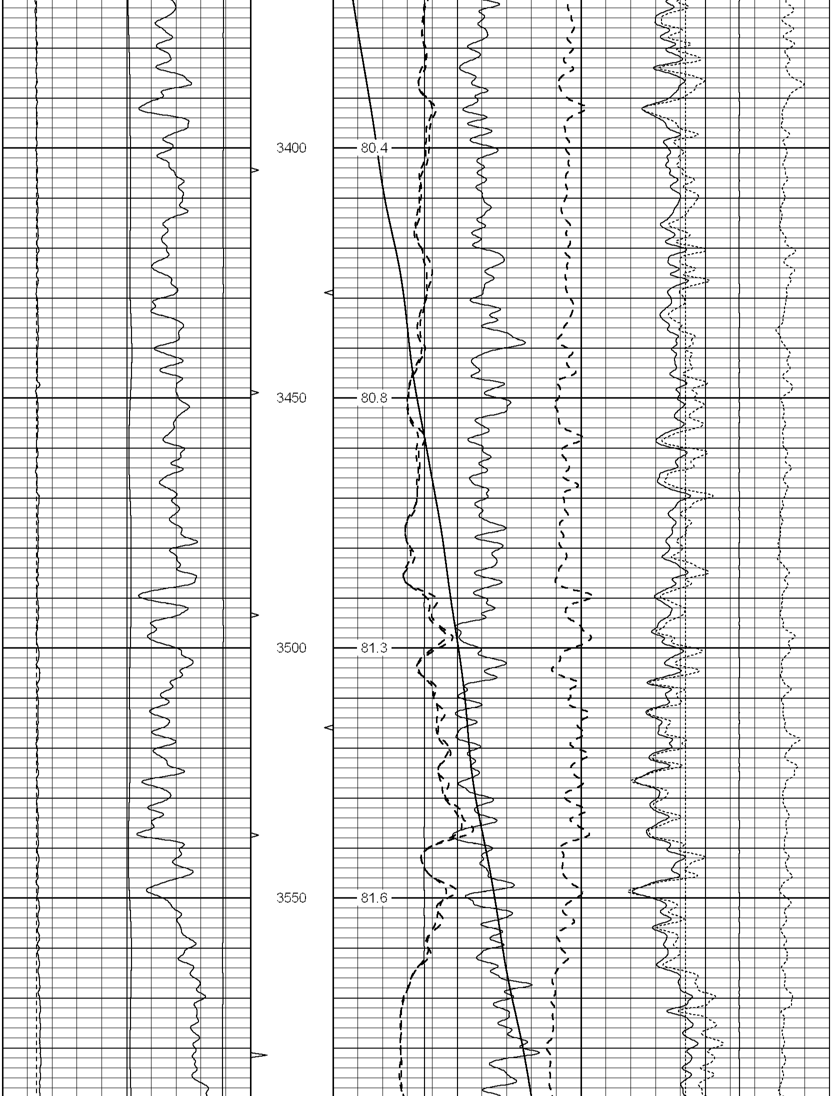


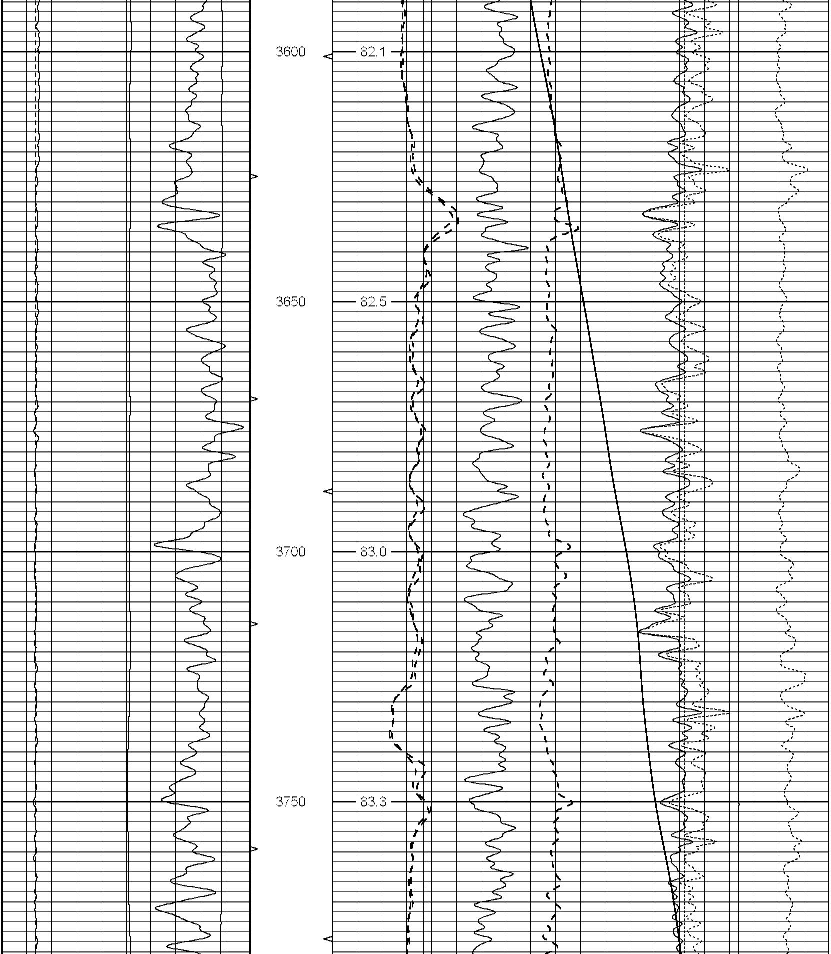


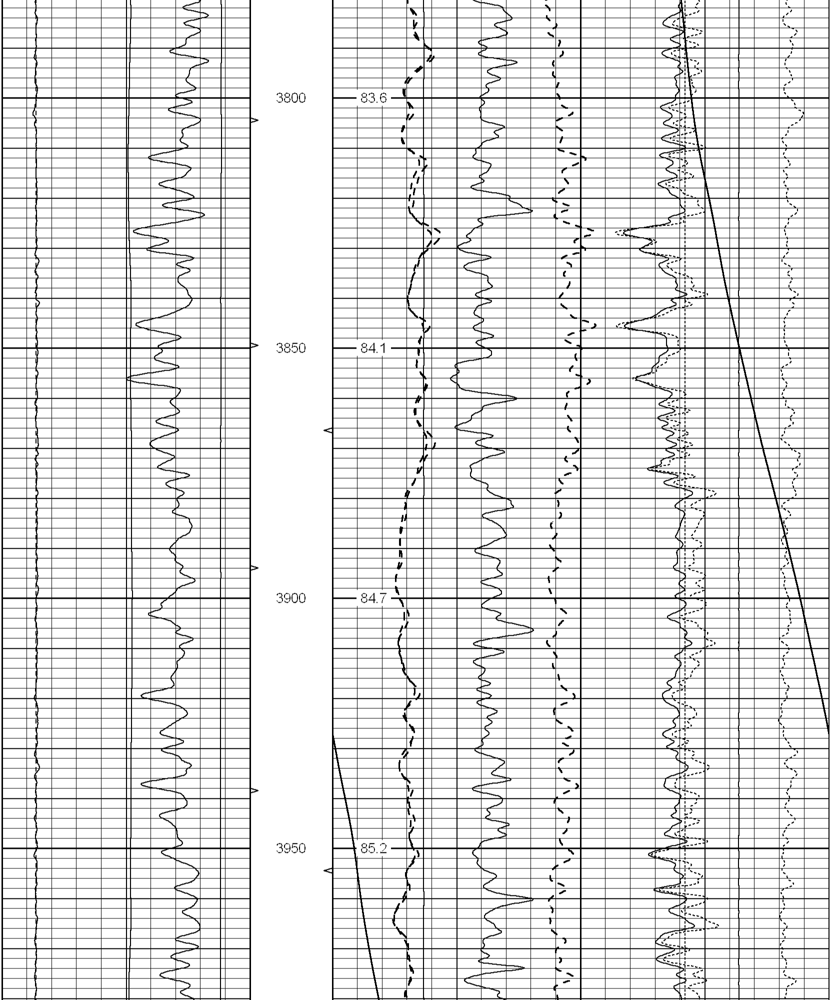


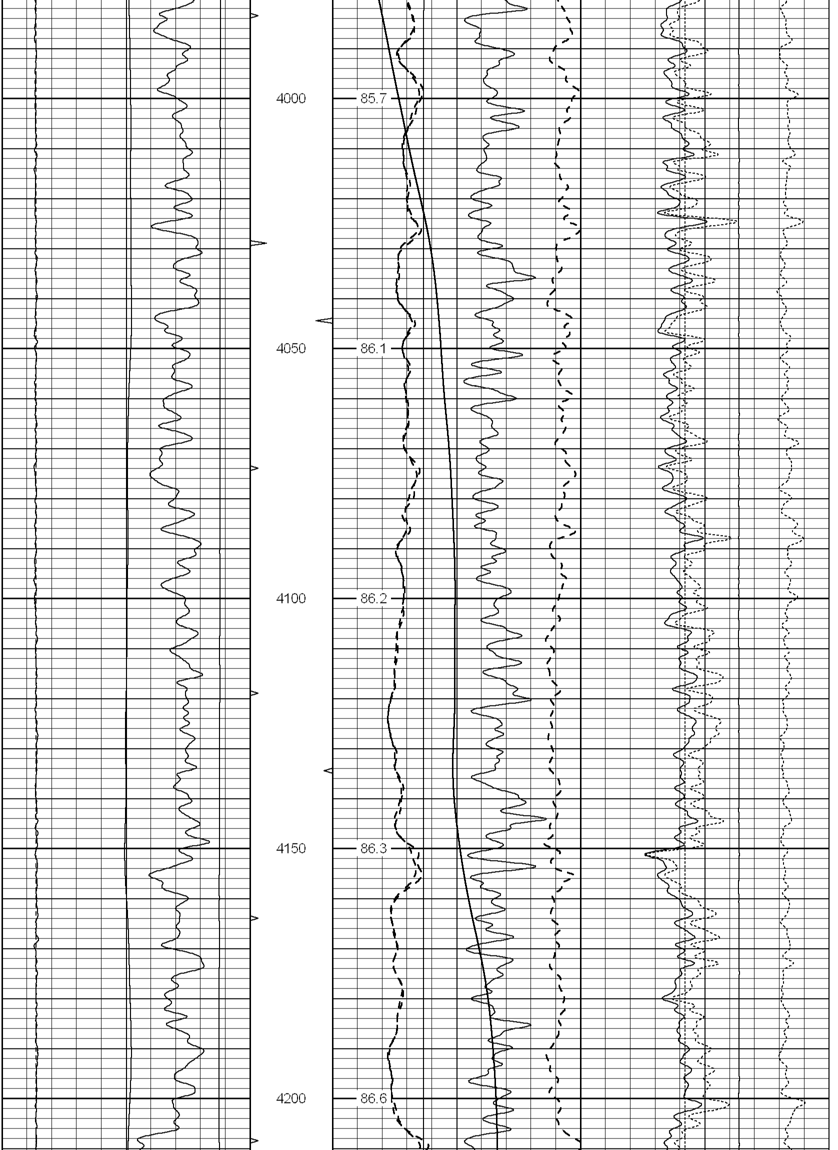


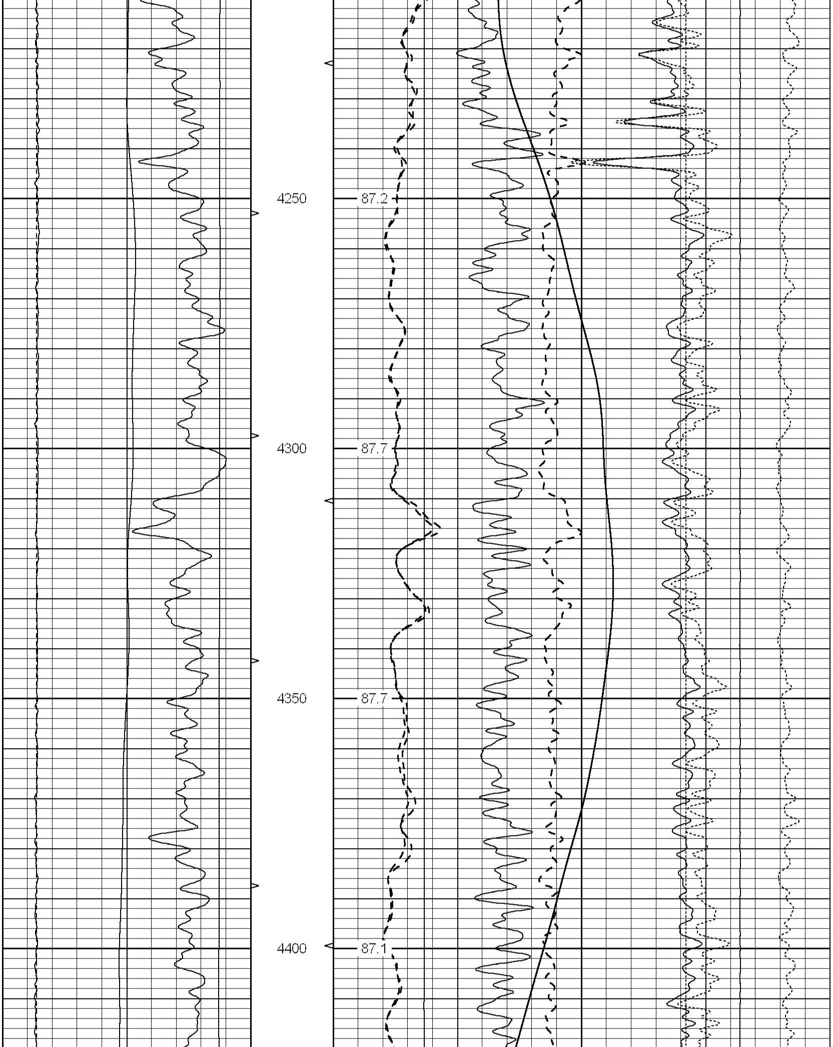


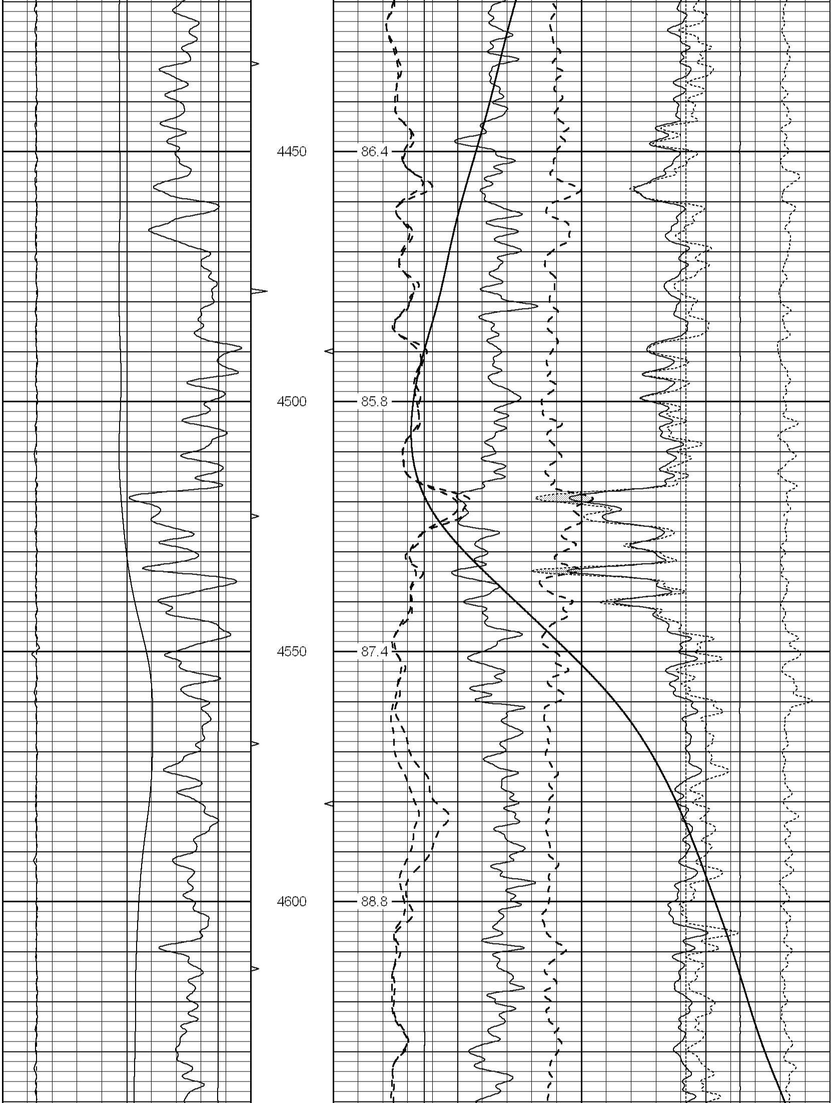


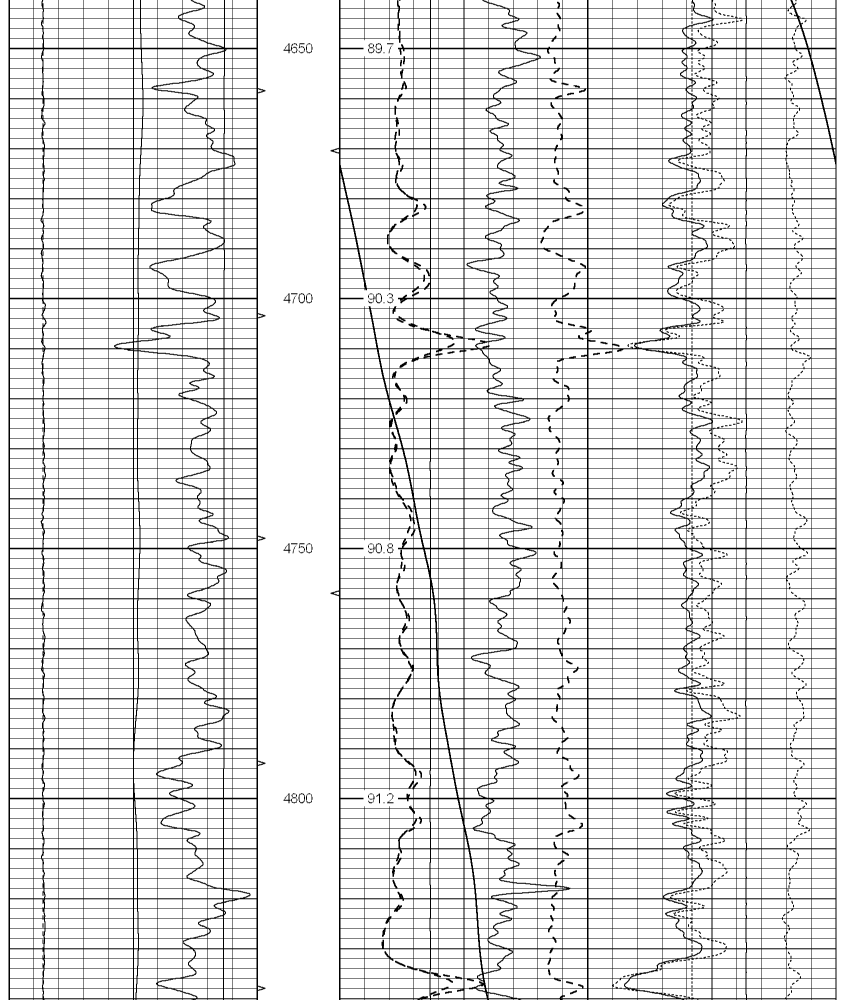


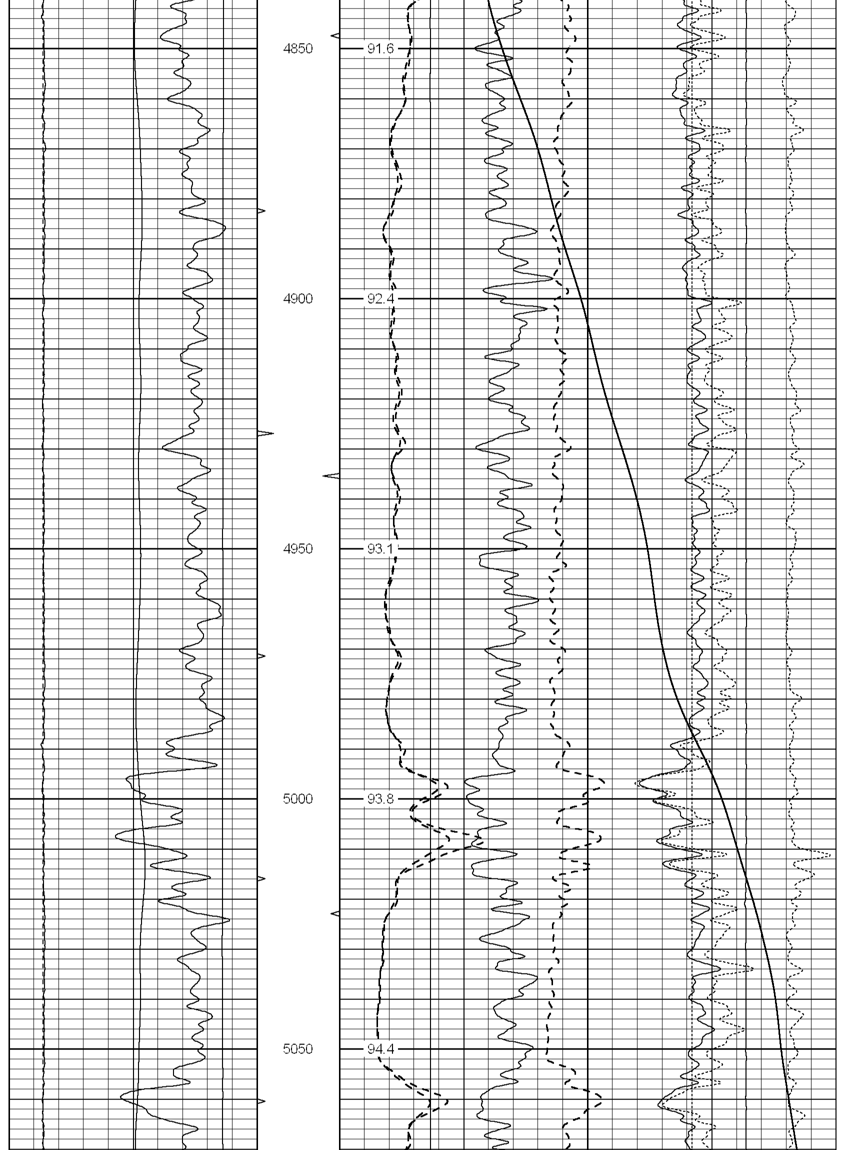


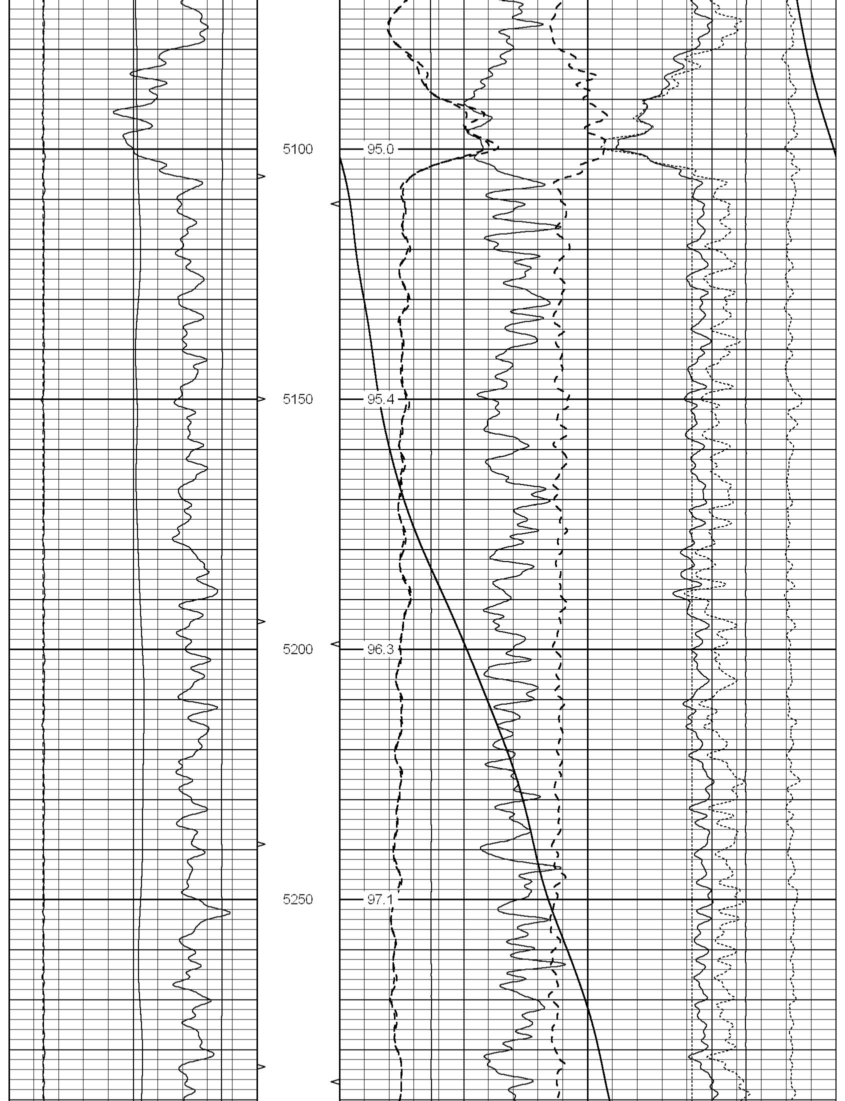


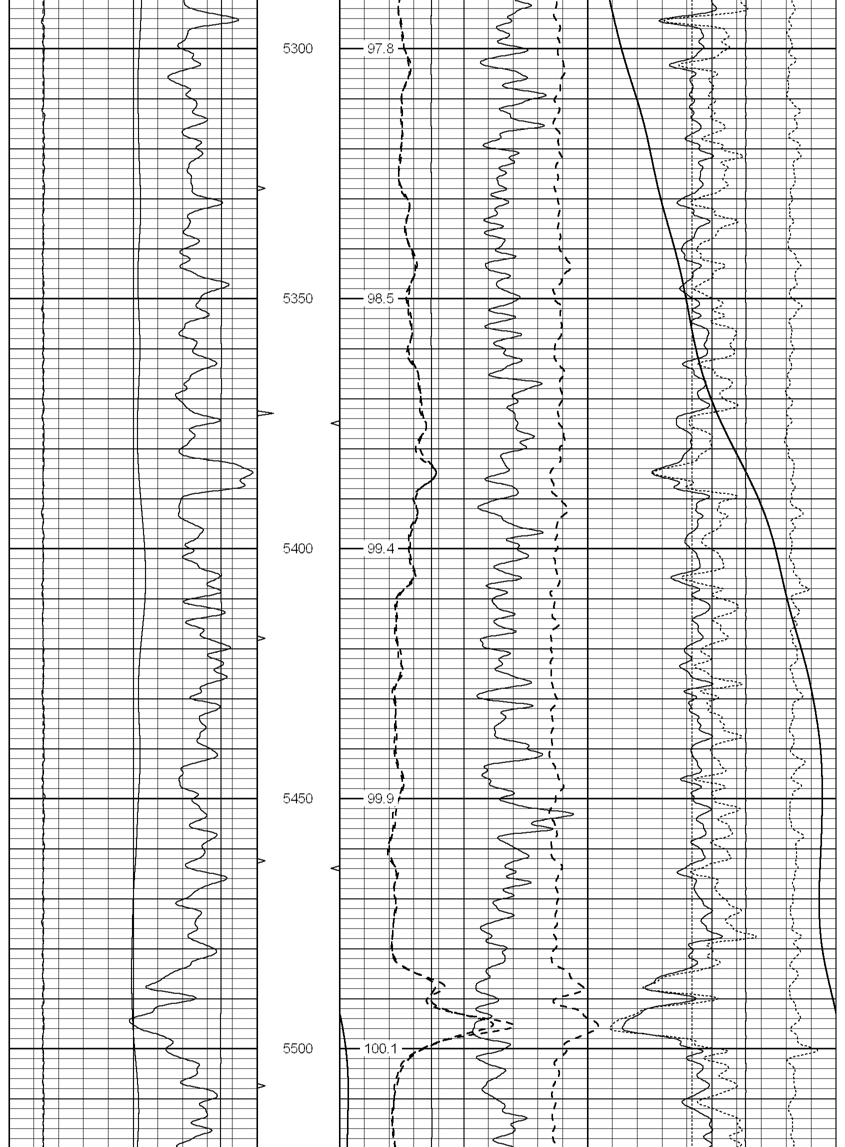


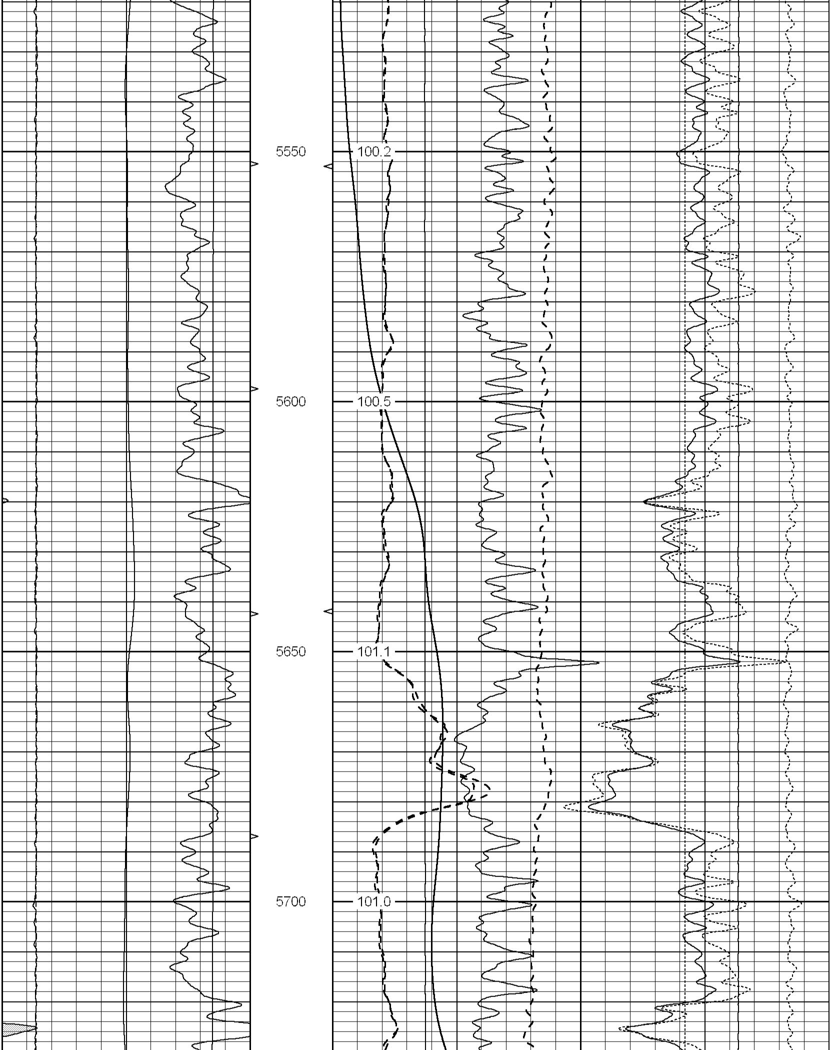


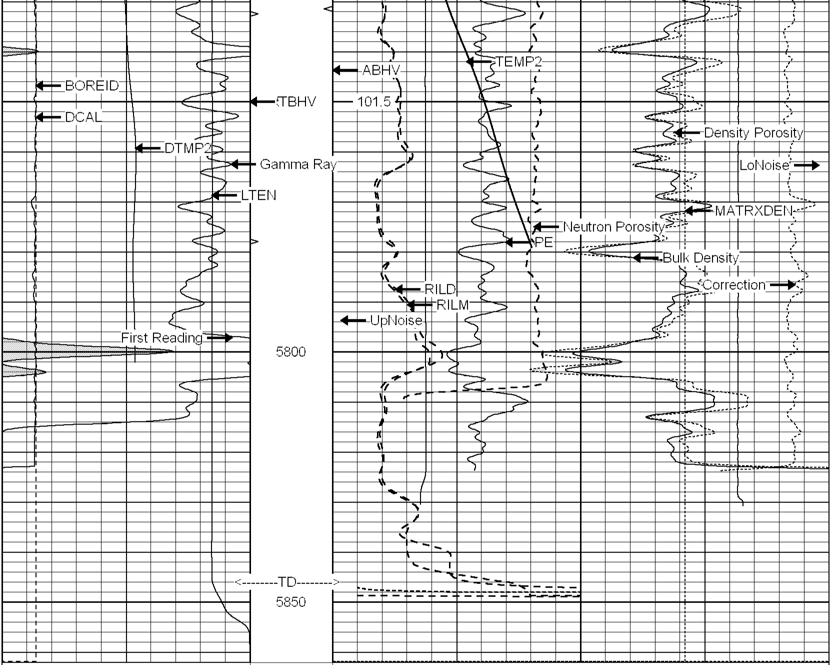












0	Gamma Ray (GAPI)	200
5	BOREID (in)	15
5	DCAL (in)	15
20000	LTEN (lb)	0
-0.25	DTMP2 (degF)	0.25

TBHV

ABHV

2	Bulk Density (g/cc)	3			
30	Density Porosity (pu)	-10			
30	Neutron Porosity (pu)	-10			
2	MATRXDEN (g/cc)	3			
0	RILD (Ohm-m)	100	-0.9	Correction (g/cc)	0.3
0	PE	10			
65	TEMP2 (degF)	70			
0	RILM (Ohm-m)	100			
100	LoNoise (V)	0			
0	UpNoise (V)	100			

TEMP2
(degF)

100	RILD (Ohm-m)	1000
100	RILM (Ohm-m)	1000

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MAIN LOG

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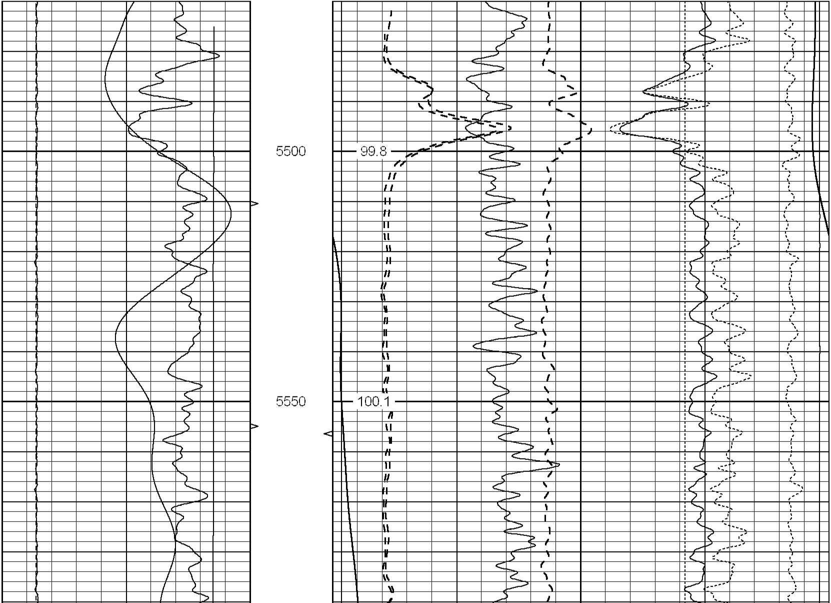
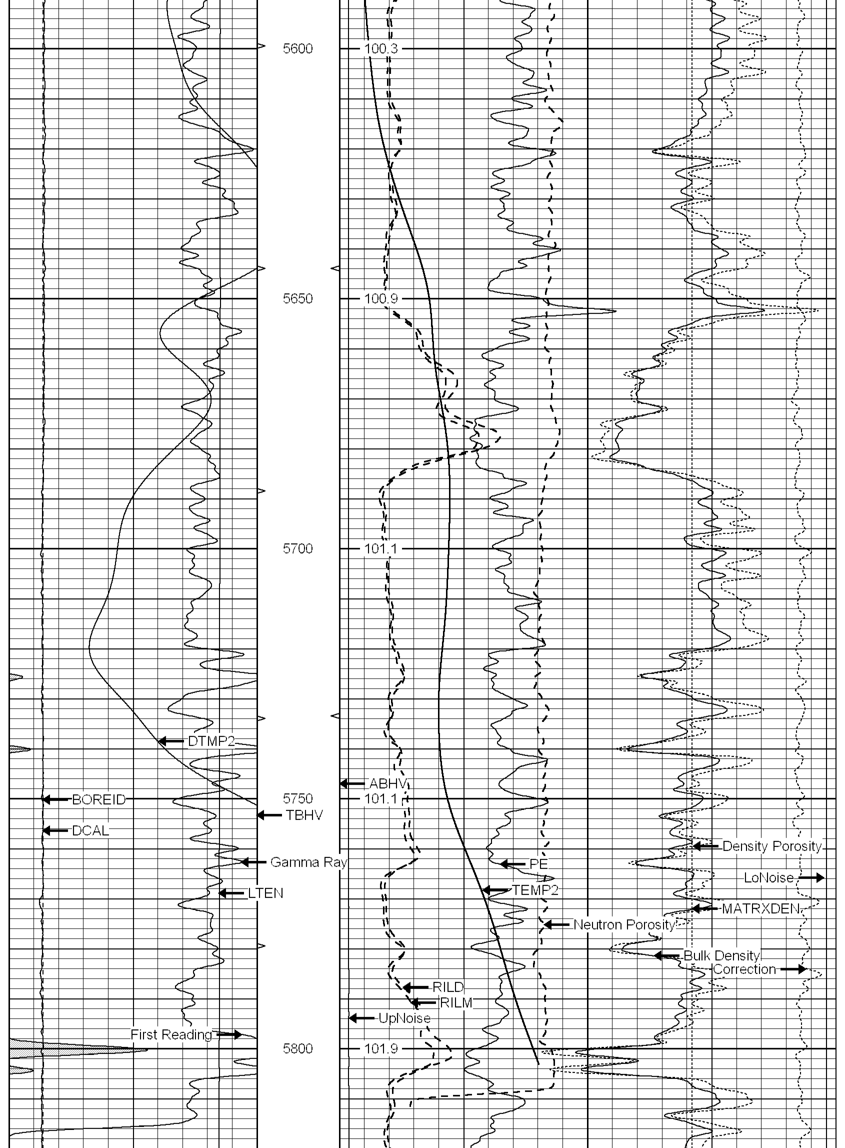
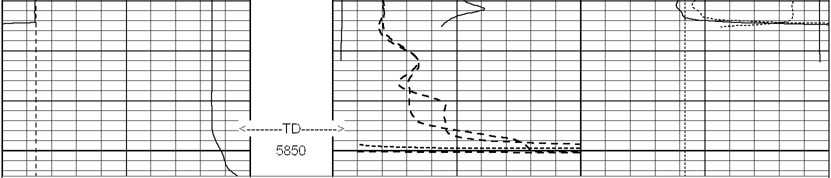
REPEAT SECTION

Database File: 14-april-2011 haught energy w-1622.db
Dataset Pathname: pass3.2
Presentation Format: dntstack
Dataset Creation: Thu Apr 14 10:30:55 2011 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

Left	Curve	Right
0	Gamma Ray (GAPI)	200
5	BOREID (in)	15
5	DCAL (in)	15
20000	LTEN (lb)	0
-0.25	DTMP2 (degF)	0.25
	TBHV	
	ABHV	
2	Bulk Density (g/cc)	3
30	Density Porosity (pu)	-10
30	Neutron Porosity (pu)	-10
2	MATRXDEN (g/cc)	3
0	RILD (Ohm-m)	100
-0.9	Correction (g/cc)	0.3
0	PE	10
0	RILM (Ohm-m)	100
1000	LoNoise (V)	0
0	UpNoise (V)	1000
65	TEMP2 (degF)	70
	TEMP2 (degF)	
100	RILD (Ohm-m)	1000
100	RILM (Ohm-m)	1000







0	Gamma Ray (GAPI)	200	TBHV	2 Bulk Density (g/cc) 3
5	BOREID (in)	15	ABHV	30 Density Porosity (pu) -10
5	DCAL (in)	15		30 Neutron Porosity (pu) -10
20000	LTEN (lb)	0		2 MATRXDEN (g/cc) 3
-0.25	DTMP2 (degF)	0.25		0 RILD (Ohm-m) 100 | -0.9 Correction (g/cc) 0.3
				0 PE 10
				0 RILM (Ohm-m) 100
				1000 LoNoise (V) 0
				0 UpNoise (V) 1000
				65 TEMP2 (degF) 70
				TEMP2 (degF)
				100 RILD (Ohm-m) 1000
				100 RILM (Ohm-m) 1000

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REPEAT SECTION

Calibration Report

Database File: 14-april-2011 haught energy w-1622.db
Dataset Pathname: pass4.3A
Dataset Creation: Thu Apr 14 10:39:48 2011

Dual Induction Calibration Report

Serial-Model: GOI-5401-GEAR
Surface Cal Performed: Wed Mar 09 16:03:50 2011
Downhole Cal Performed: Wed Mar 09 16:03:50 2011
After Survey Verification Performed: Wed Mar 09 16:03:50 2011

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.010	0.634	V	0.000	400.000	mmho/m	621.265	6.132
Medium	0.028	0.774	V	0.000	464.000	mmho/m	622.008	-17.251
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	-0.010	0.632	V	0.000	400.000	mmho/m	622.563	6.270
Medium	0.003	0.744	V	0.000	464.000	mmho/m	626.472	-1.874

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.125	399.041	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	-15.391	445.303	mmho/m	1.000	0.000
LL3		4.412	V		1.000	Ohm-m		
		4.392	V		0.000	Ohm-m		
		1.000	V		1.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
LL3		0.000	Ohm-m		1.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		
		1.000	mmho-m		1.000	mmho-m		

Temperature Calibration Report

Serial Number: 080341
Tool Model: PROBE
Performed: Tue Jan 04 12:43:44 2011

	Reference	Reading
Low Reference:	48.00 degF	307.30 cps
High Reference:	133.00 degF	1199.30cps

Gain: 0.10
Offset: 18.72
Delta Spacing 2

Litho Density Calibration Report

Serial: 080550 Model: PRB

Master Calibration

Performed Wed Mar 02 10:46:52 2011

	Background	Magnesium	Aluminum	Aluminium + Fe	
Window 1	2294.9	52352.8	13355.0	11337.8	cps
Window 2	2138.8	46688.4	12080.8	10377.1	cps
Window 3	1639.2	21144.7	6048.3	5487.2	cps
Window 4	440.4	447.3	442.2	438.6	cps
Long Space	0.0	44549.6	9942.0	8238.2	cps
Short Space	2.8	7147.6	4826.0	4121.5	cps
Rho		1.7100	2.5900	0.0000	g/cc
Pe		2.0000	2.7500	5.7900	

Rib Angle	: 45.3	Rib Slope	: 1.011	Density/Spine Ratio	: 0.568
Spine Angle	: 75.3	Spine Slope	: 3.819	Spine Intercept	: -23.2

Before Survey Verification

Performed Wed Dec 31 19:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification

Performed Wed Dec 31 19:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

Gamma Ray Calibration Report

Serial Number:	619	
Tool Model:	ADDON	
Performed:	Tue Jan 04 12:49:09 2011	
Calibrator Value:	5485.0	GAPI
Background Reading:	129.9	cps
Calibrator Reading:	5585.4	cps
Sensitivity:	0.2300	GAPI/cps

Neutron Calibration Report

Serial Number:	080813		
Tool Model:	PROBEOP		
Performed:	Tue Jan 04 12:49:31 2011		
Calibrator Values:	6.9	13	NAPI
Calibrator Readings:	2850	1850	cps
Sensitivity:	-0.0061	NAPI/cps	

Log Variables

Database:C:\Warrior\Data\14-april-2011 haught energy w-1622.db
Dataset: field/well/run1/pass4.3A

Top - 2116.00 ft

BOREID in	BOTTEMP degF	CASEOD in	FLUIDDEN g/cc	MATRXDEN g/cc	NPORSEL	NPORSHIFT	PERFS
0	0	0	0	0	Limestone	0	0

SNDERR mmho/m	SNDERRM mmho/m	TDEPTH ft
0	0	0

2116.00 ft - 5862.00 ft

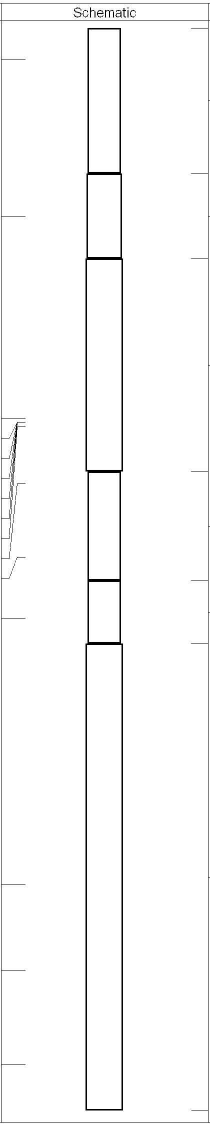
BOREID in	BOTTEMP degF	CASEOD in	FLUIDDEN g/cc	MATRXDEN g/cc	NPORSEL	SNDERR mmho/m	SNDERRM mmho/m
6.375	100	4.5	1	2.71	Limestone	5.5	7

5862.00 ft - Bottom

BOREID in	BOTTEMP degF	CASEOD in	FLUIDDEN g/cc	MATRXDEN g/cc	NPORSEL	SNDERR mmho/m	SNDERRM mmho/m
0	0	0	0	0	Limestone	0	0

Sensor	Offset (ft)
NEU	45.85
GR	38.99
DCAL	30.18
W1	30.02
W2	30.02
W3	30.02
W4	30.02
Q	30.02
SSD	29.81
UpNoise	27.33
LoNoise	24.13
TEMP	21.48
CILD	9.85
CILM	6.10
RLL3	2.02

Schematic



Description	Len (ft)	OD (in)	Wt (lb)
OHNEU-PROBEOP (080813)	6.36	3.59	70.00
OHGR-ADDON (619)	3.70	3.75	30.00
LDT-PRB (080550)	9.30	4.00	275.00
DNT-DNT_No_Temp (080414) Dual Nooise Tool without Temperature	4.75	3.60	75.00
OHTEMP-PROBE (080341)	2.75	3.60	40.00
DIL-GEAR (GOI-5401) PROBE DIL	20.35	4.00	200.00

Dataset: 14-april-2011 haught energy w-1622.db: field/well/run1/pass4.3A
Total Length: 47.22 ft
Total Weight: 690.00 lb
O.D. 4.00 in