PHOENIX SURVEYS, INC.

DUAL INDUCTION
GUARD LOG
GAMMA RAY

Company
Well
Field
County
State/Prv

Company	**Noble Energy Inc.**
Well	**Cooper 23-01-20**
Field	**Wattenberg**
County	**Weld**
State/Province	**Colorado**
Location	**2448' FNL & 2480' FEL** **SWNE** **Sec. 23, Twp. 6N, Rge. 64W**

Other Services
Density
Neutron
Microlog

Permanent Datum	GL	Elevation	4640
Log Measured From	KB		
Drilling Measured From	KB		

Elevation
K.B. 4653
D.F. 4653
G.L. 4640

Date	May 18, 2010		
Run Number	1		
Depth Driller	6985		
Depth Logger	6990		
Bottom Logged Interval	6990		
Top Log Interval	Casing		
Casing Driller	520		
Casing Logger	520		
Bit Size	7-7/8"		
Type Fluid in Hole	Chem Gel		
Density / Viscosity	9.4 / 38		
pH / Fluid Loss	8.0 / 16.0		
Source of Sample	Flowline		
Rm @ Meas. Temp	3.58 @ 68° F		
Rmf @ Meas. Temp	2.86 @ 68° F		
Rmc @ Meas. Temp	4.30 @ 68° F		
Source of Rmf / Rmc	Measure / Calc		
Rm @ BHT	1.19 @ 200° F		
Time Circulation Stopped	0200		
Time Logger on Bottom	0715		
Maximum Recorded Temperature	200° F		
Equipment Number	50		
Location	Brighton, CO		
Recorded By	Matt Gill		
Witnessed By	Mike McClelland		

<<< Fold Here >>>

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

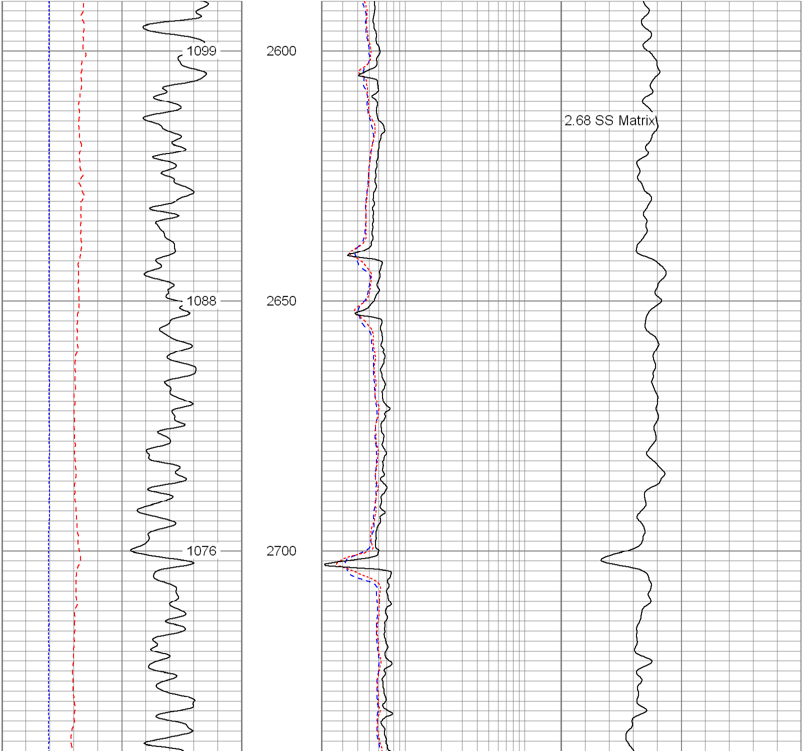
Annular volume calculated for 4.5" casing
Ensign Drilling Rig 136
Thank you for using Phoenix Surveys!!
API #: 05-123-30426-00

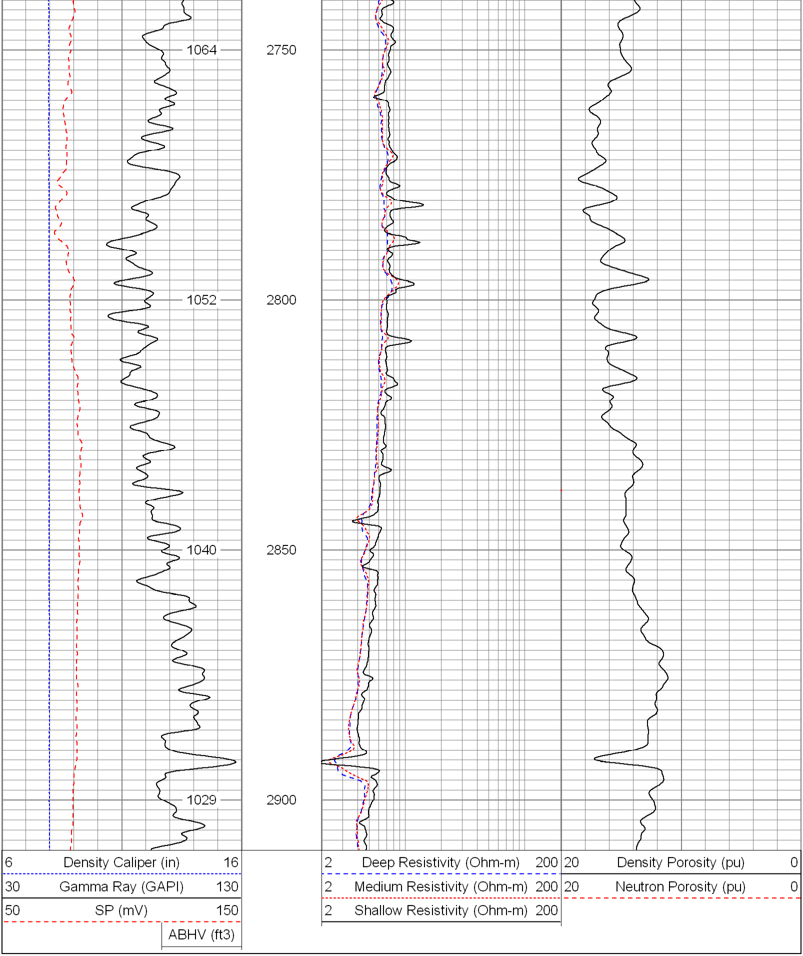
Database File:	10695.db
Dataset Pathname:	final
Presentation Format:	pdc1
Dataset Creation:	Tue May 18 08:06:35 2010
Charted by:	Depth in Feet scaled 1:240

6 Density Caliper (in) 16
30 Gamma Ray (GAPI) 130
50 SP (mV) 150
ABHV (ft3)

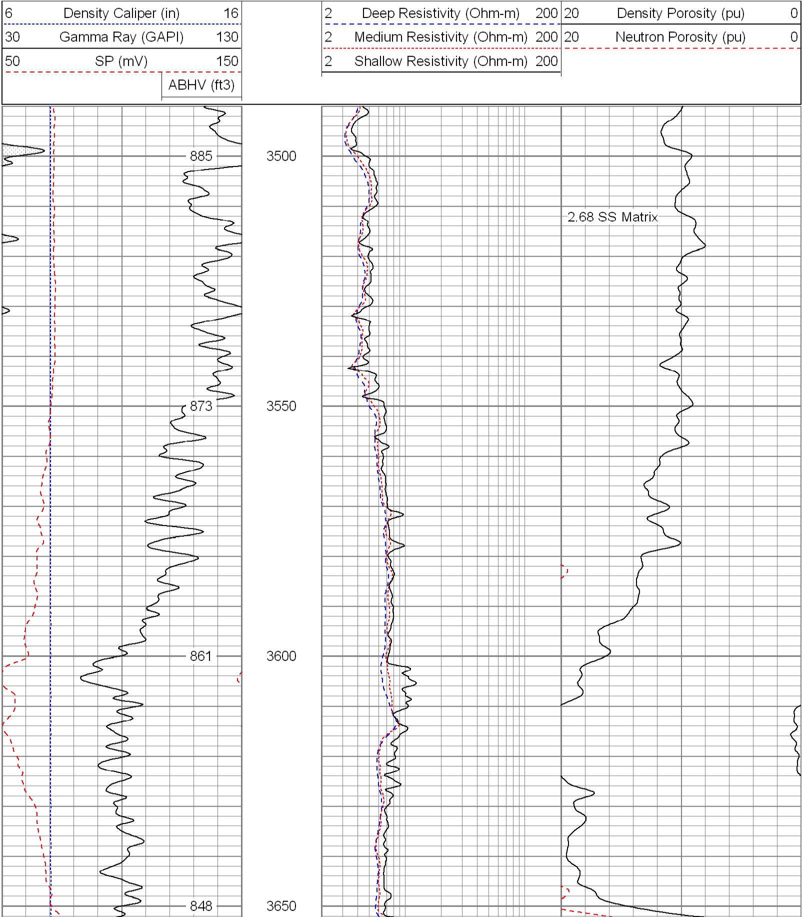
2 Deep Resistivity (Ohm-m) 200
2 Medium Resistivity (Ohm-m) 200
2 Shallow Resistivity (Ohm-m) 200

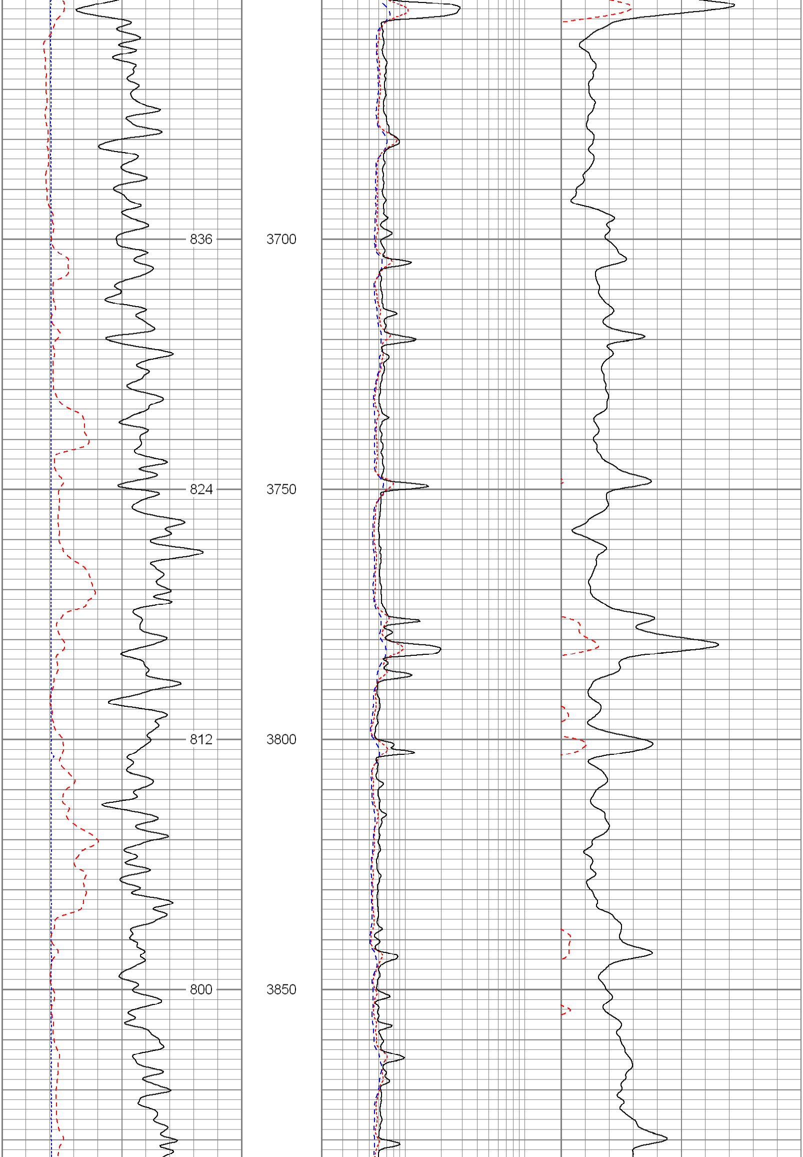
20 Density Porosity (pu) 0
20 Neutron Porosity (pu) 0

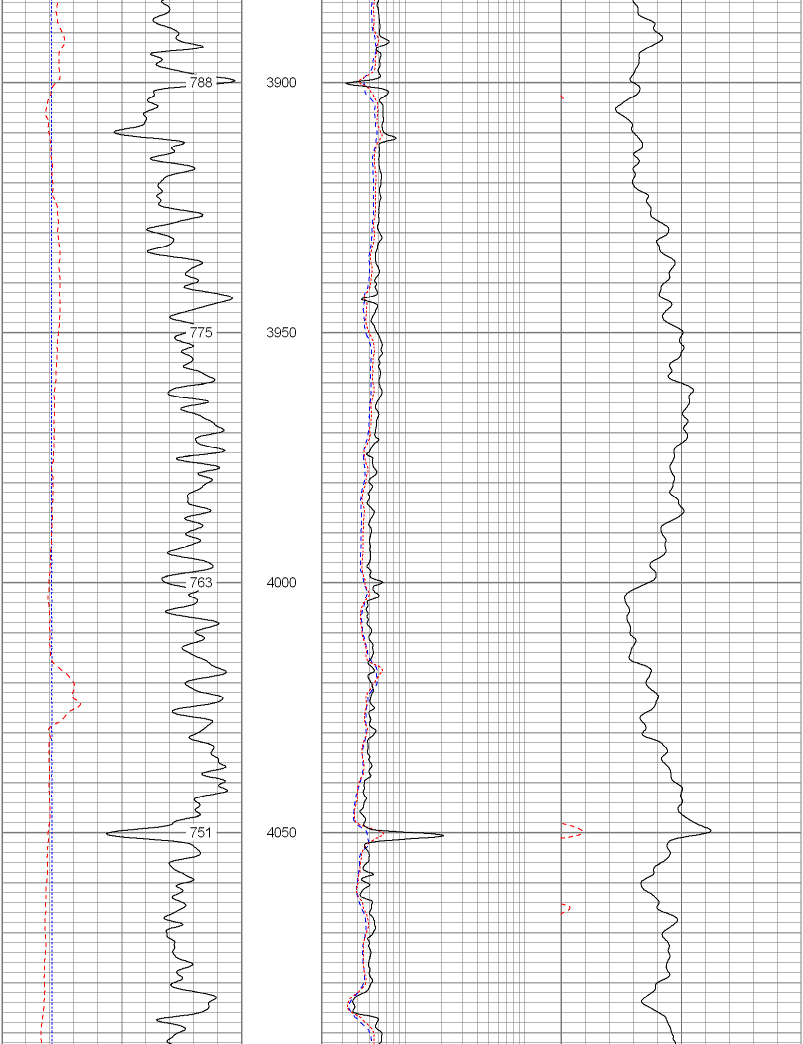


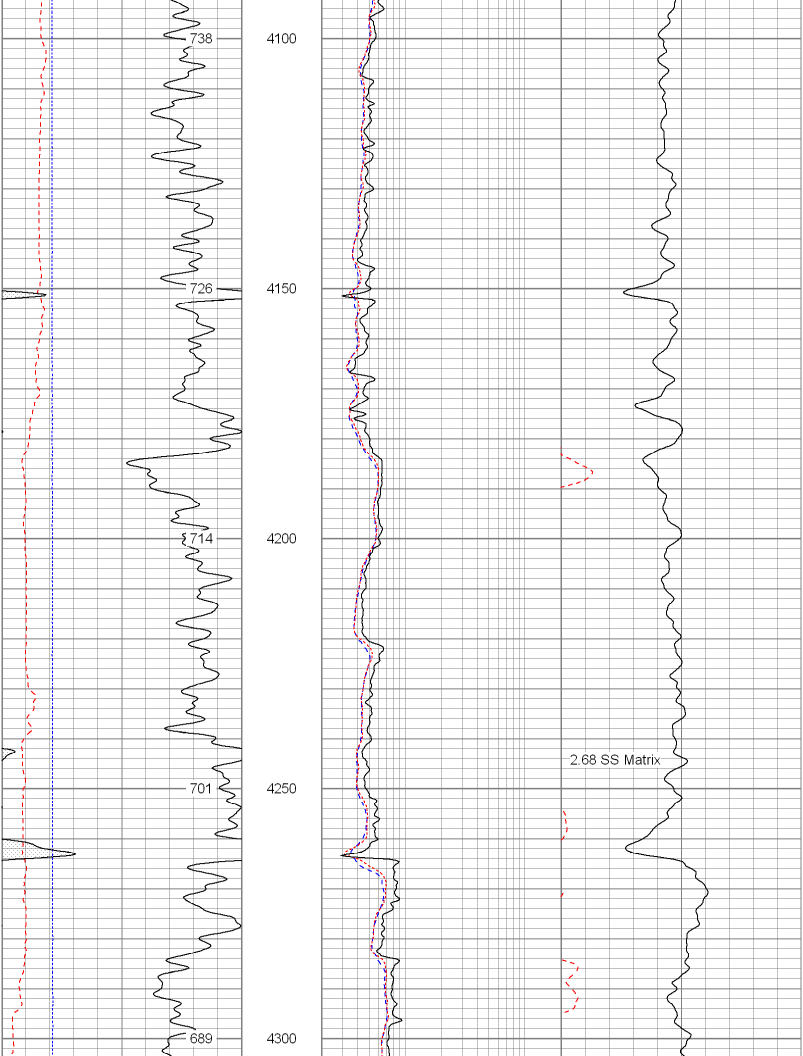


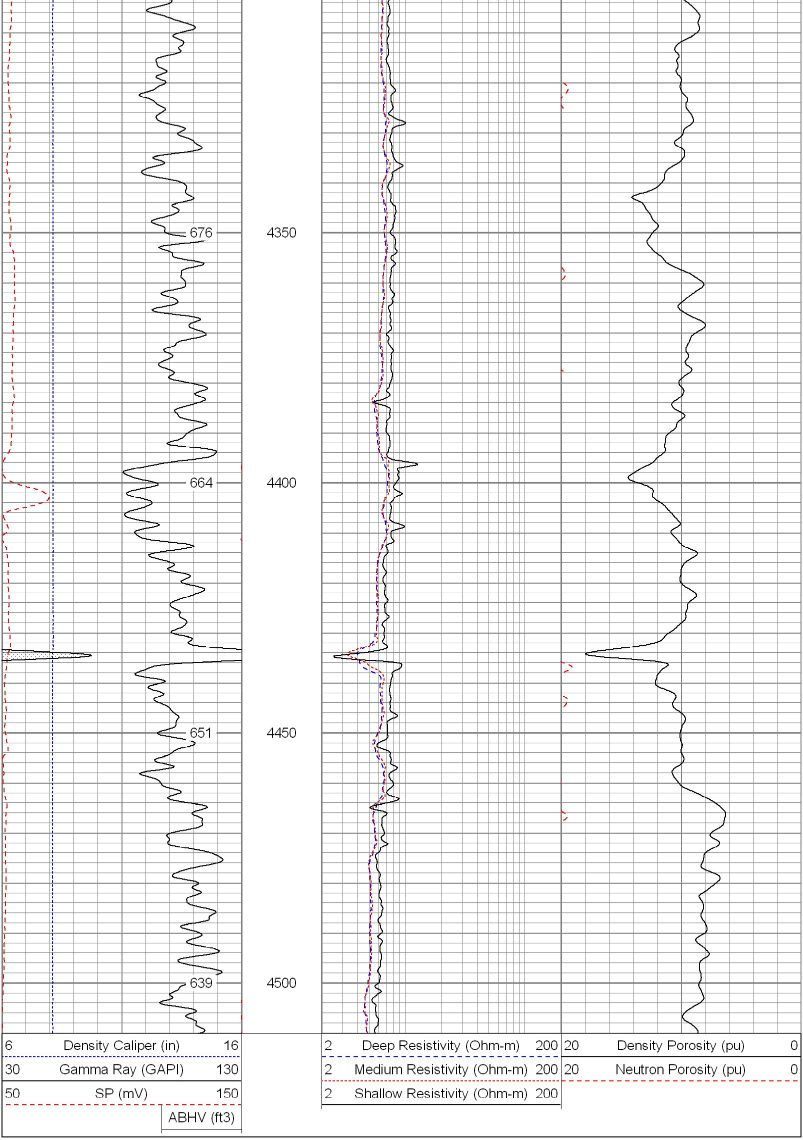
Database File:	10695.db
Dataset Pathname:	final
Presentation Format:	pdc1
Dataset Creation:	Tue May 18 08:06:35 2010
Charted by:	Depth in Feet scaled 1:240











Database File:	10695.db
Dataset Pathname:	final
Presentation Format:	pdc1
Dataset Creation:	Tue May 18 08:06:35 2010
Charted by:	Depth in Feet scaled 1:240

6 Density Caliper (in) 16

30 Gamma Ray (GAPI) 130

50 SP (mV) 150

ABHV (ft3)

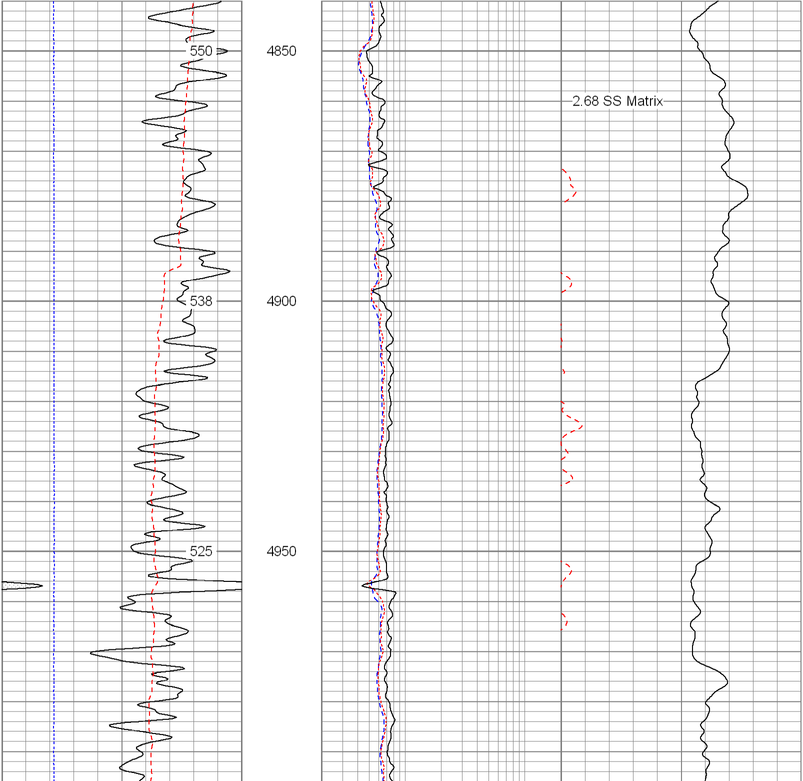
2 Deep Resistivity (Ohm-m) 200

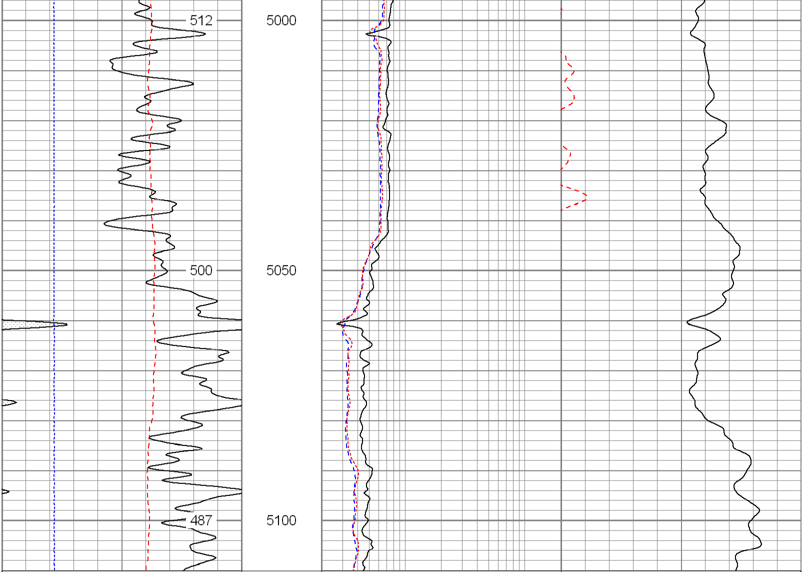
2 Medium Resistivity (Ohm-m) 200

2 Shallow Resistivity (Ohm-m) 200

20 Density Porosity (pu) 0

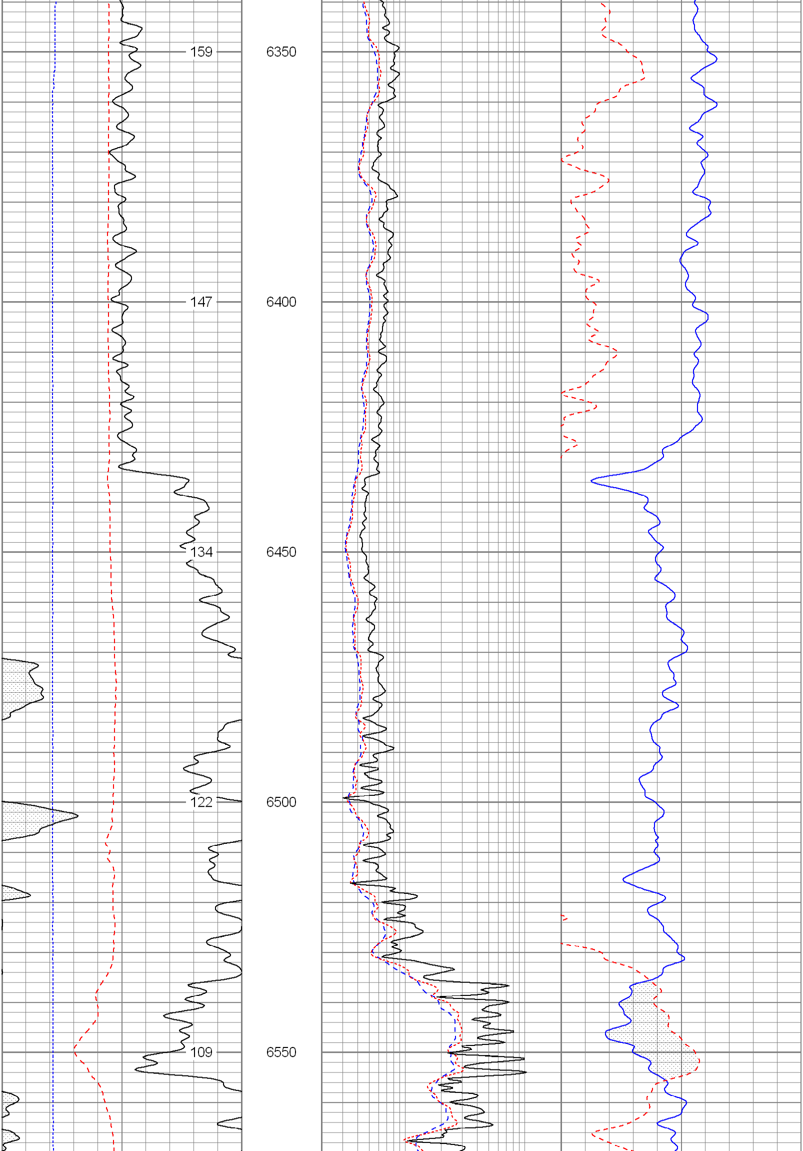
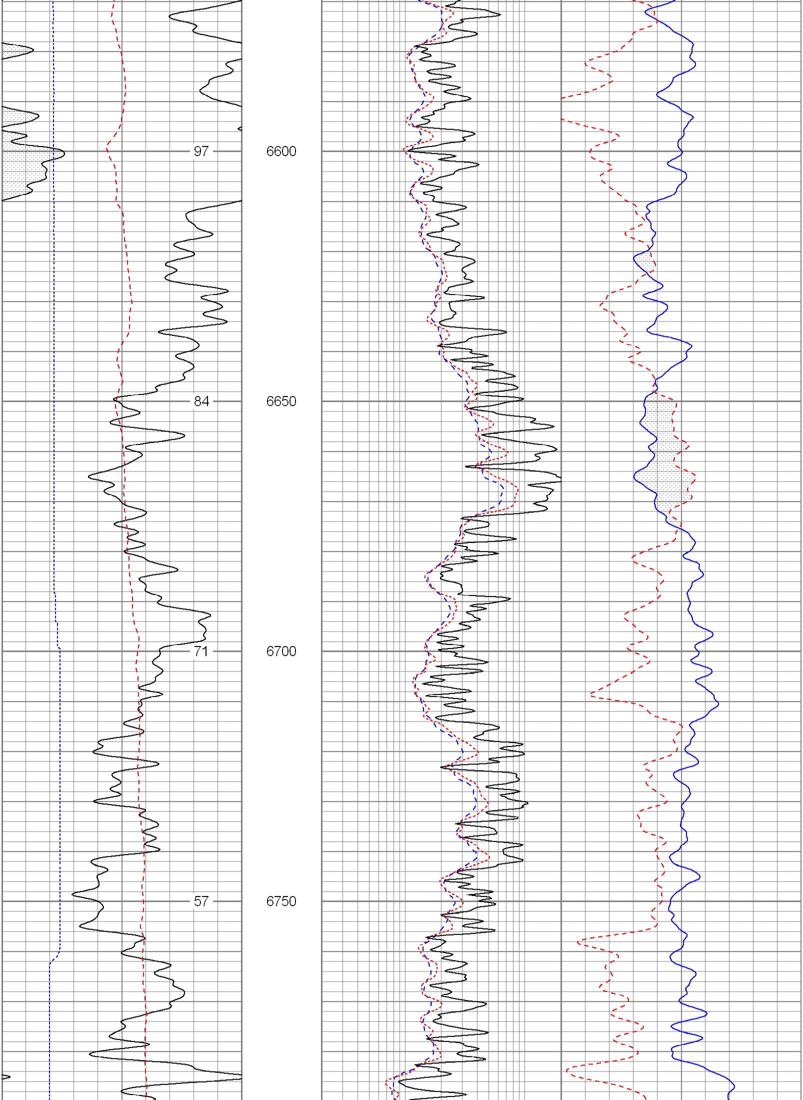
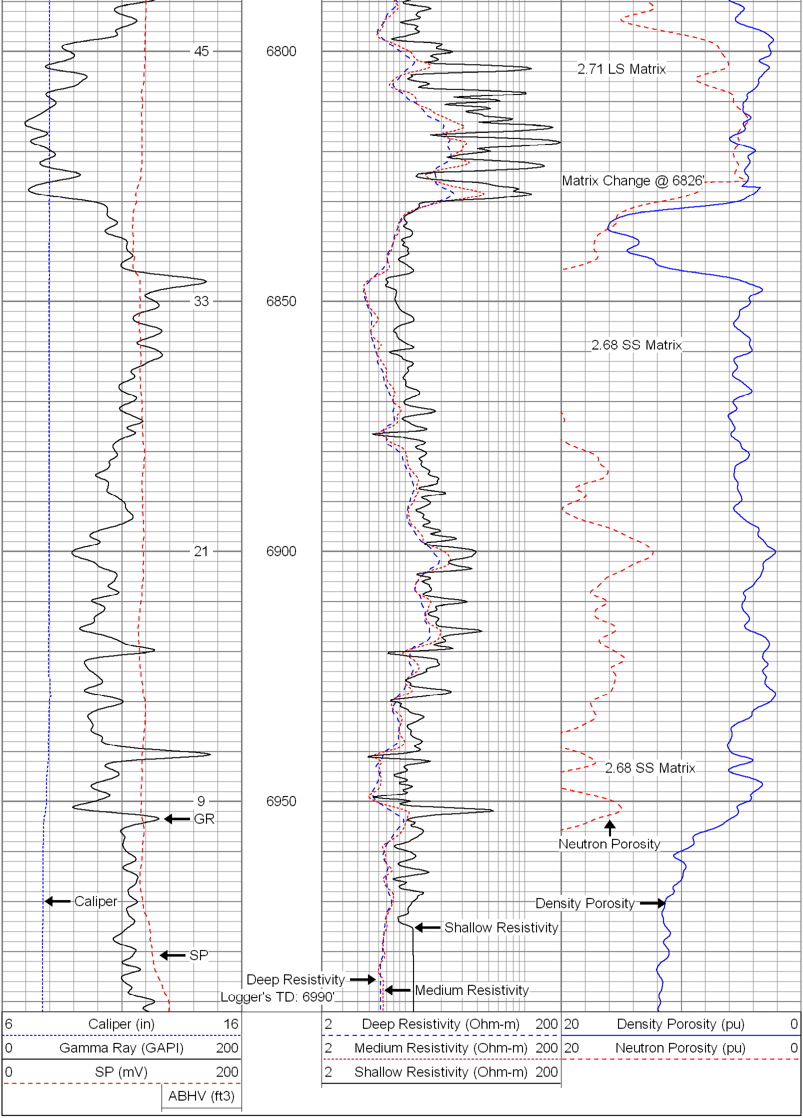
20 Neutron Porosity (pu) 0





6 Density Caliper (in) 16	2 Deep Resistivity (Ohm-m) 200	20 Density Porosity (pu) 0
30 Gamma Ray (GAPI) 130	2 Medium Resistivity (Ohm-m) 200	20 Neutron Porosity (pu) 0
50 SP (mV) 150	2 Shallow Resistivity (Ohm-m) 200	
ABHV (ft3)		

Database File:	10695.db
Dataset Pathname:	final
Presentation Format:	pdc
Dataset Creation:	Tue May 18 08:06:35 2010
Charted by:	Depth in Feet scaled 1:240

6 Caliper (in) 16	2 Deep Resistivity (Ohm-m) 200	20 Density Porosity (pu) 0
0 Gamma Ray (GAPI) 200	2 Medium Resistivity (Ohm-m) 200	20 Neutron Porosity (pu) 0
0 SP (mV) 200	2 Shallow Resistivity (Ohm-m) 200	
ABHV (ft3)