HALLIBURTON

RESERVOIR MONITOR TOOL ELITE

Company LARAMIE ENERGY II
Well REPPO 34-15B
Field GRAND VALLEY
County GARFIELD State CO

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API No.: 05045185290000 Serv #: 7042365
Location: SURFACE HOLE:
0550' FSL & 2596' FEL

BOTTOM HOLE:
0884' FSL & 1973' FWL

Sec: 34 Twp: 07S Rge: 96W

Other Services
TEMP
CBL

Permanent Datum GROUND LEVEL Elevation 5155'
Log Measured From K.B. , 21 Ft. above perm. datum
Drilling Measured From K.B.

Elevation
K.B. 5176'
D.F. -----
G.L. 5155'

Date @ Time Logged	04/DEC/09 @ 1215 HRS	Type Fluid in Hole	WATER
Run No.	ONE	Density of Fluid	8.34 PPG
Depth - Driller	5068'	Fluid Level	FULL
Depth - Logger	5004'	Cement Top Est. Logged	N/A
Bottom - Logged Interval	5000'	Equipment / Location	10549604 / GJ
Top - Log Interval	1700'	Recorded by	A. LINTEL
Max. Recorded Temp.	182 F	Witnessed by	N/A

CEMENTING DATA	Surface String	Protection String	Production String	Liner
Date / Time Cemented				
Primary / Squeeze				
Expected Compressive Strength	psi@ hrs	psi@ hrs	psi@ hrs	psi@ hrs
Cement Volume				
Cement Type / Weight	/	/	/	/
Formulation				
Mud Type / Mud Wgt.	/	/	/	/

Borehole Record				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	26"	SURFACE	40'	16"	N/A	SURFACE	40'
TWO	12.5"	40'	800'	8.625"	32#	SURFACE	800'
THREE	7.875"	800'	5068'	4.5"	11.6#	SURFACE	5068'

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HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHCIH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

GR-CCL-CBL RAN IN COMBINATION

CORRELATED TO HES CBL LOG DATED 04/DEC/2009

LOGGED INTERVALS PER CUSTOMER REQUEST

SHORT JOINTS LOCATED @ 1750' - 1772' & 3958' - 3980'

THANK YOU FOR USING HALLIBURTON ENERGY SERVICES GRAND JUNCTION, CO

Service Ticket No. 7042365 API No. 05045185290000 PGM Ver WARRIOR 7.0

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

TELEMETRY		RMT					
Run No.	ONE	Run No.	ONE	Run No.		Run No.	
Serial No.	B095	Serial No.	U070	Serial No.		Serial No.	
Model No.	TTTC-B	Model No.	RMTE-U	Model No.		Model No.	
Diameter	1.69"	Diameter	2.125"	Diameter		Diameter	

LOGGING DATA

General Data

Pass No.	Depths From	Depths To	Well Head Pressure	Speed Ft/Min	Logging Run Comments
ONE	5004'	1700'	0 PSI	65	MAIN SECTION

Pass	GAMMA RAY Scale		CCL Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	-900	100				

DIRECTIONAL INFORMATION

Maximum Deviation		deg. @		KOP		

HALLIBURTON

MAIN SECTION

5" = 100'

Database File: reppo_34_15b_rmt.db
Dataset Pathname: MAINF
Presentation Format: rmt_main
Dataset Creation: Fri Dec 04 17:08:36 2009
Charted by: Depth in Feet scaled 1:240

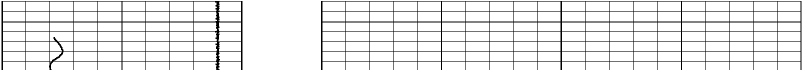
200 Near Bore Si (SGBN) (cu) 0
0 OAI 100
10 FAR FIT ERR (SGFF) (cu) 40
0 GR (GAPI) 200
0 NEAR FIT ERR (SGFN) (cu) 100
-450 CCL 50
0 IN FIT ERR (CFTR1) NEAR 1
0 IN FIT ERR CFTR2) FAR 1

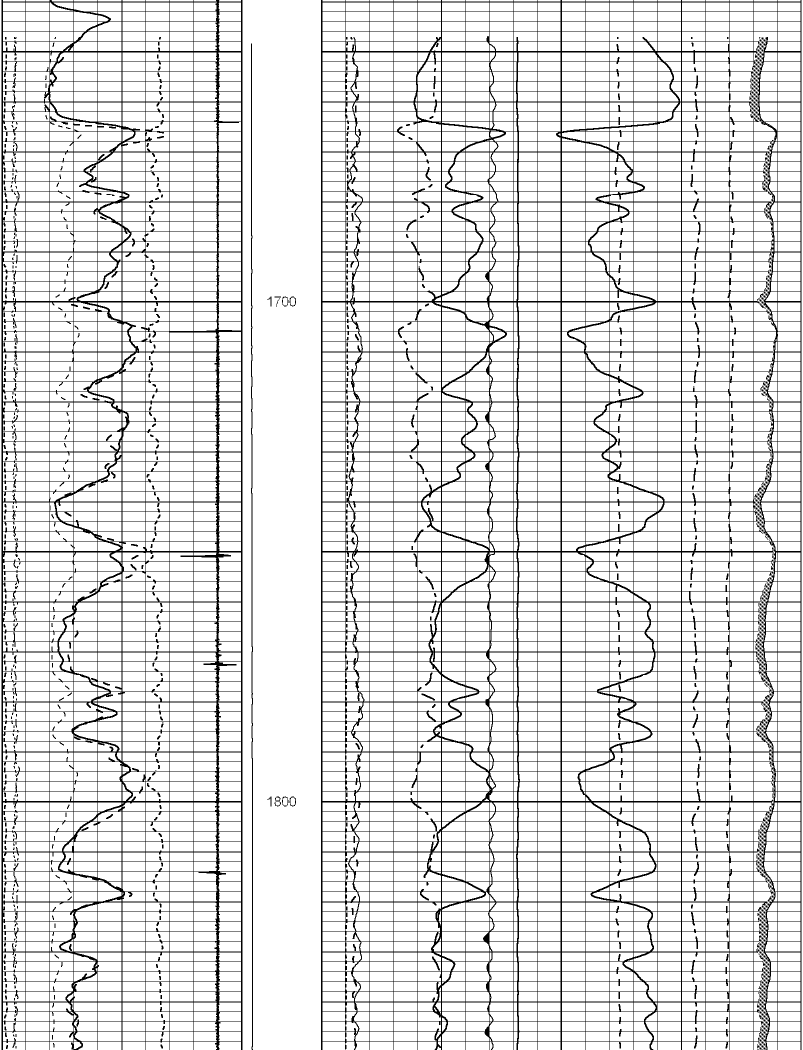
TENSION
0 (lb)3000

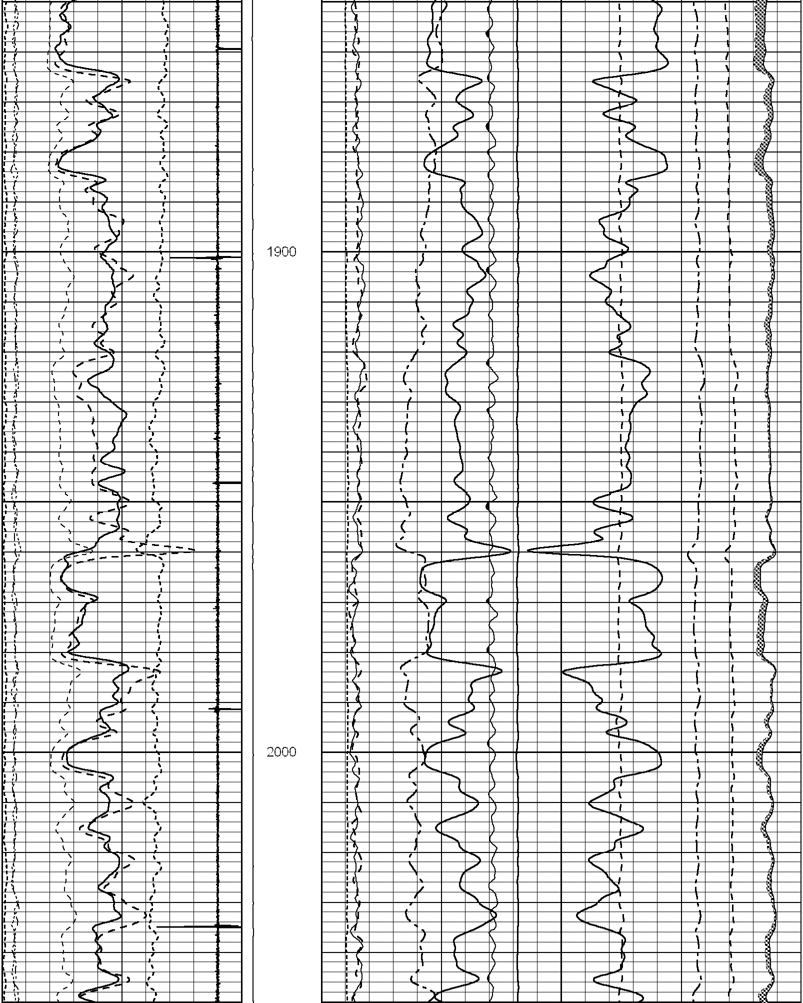
50 CS (ft/min) 0
60 SIGMA FORM(SGFM) (cu) 0
7 RATIO (RNF) 1
0 RIN 15
0 RICF 6
0 H YIELD (YH2) 1
0 H YIELD (YH1) 1

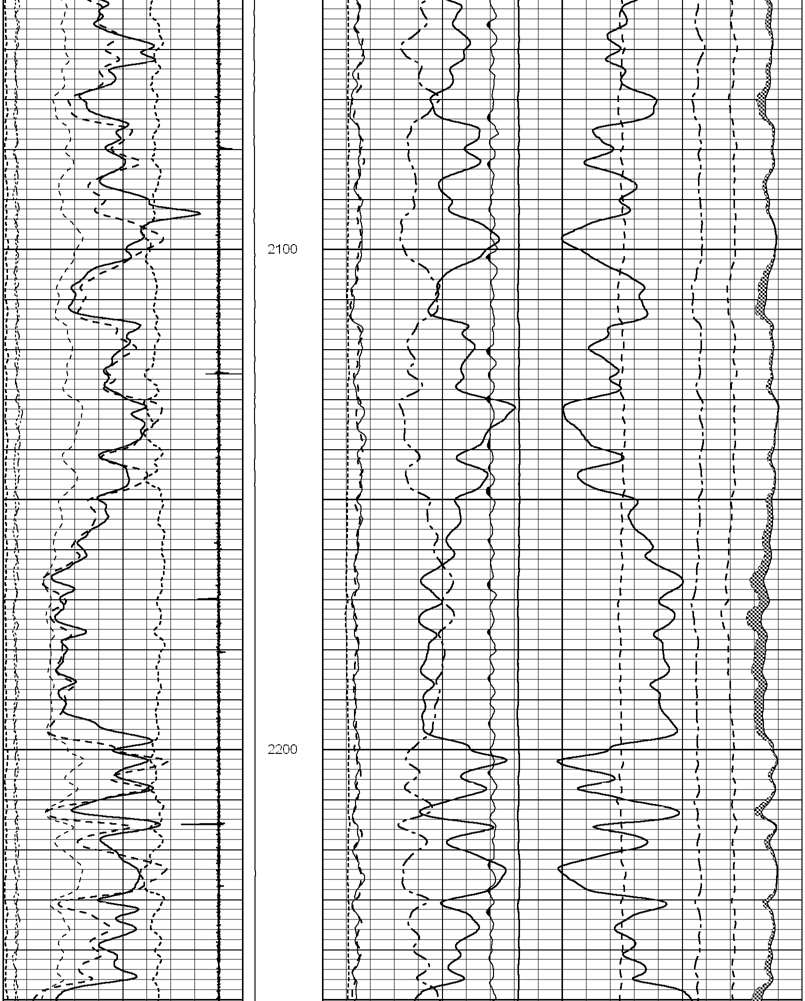
INOX2
-1500 1500

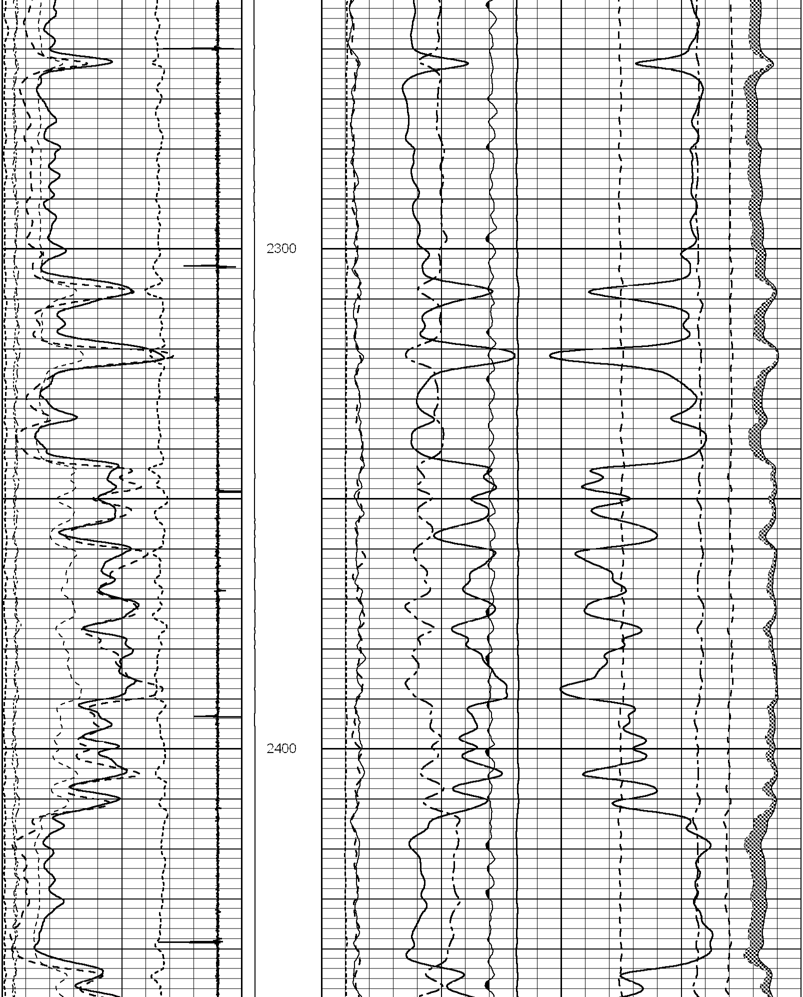
60000 Near Counts (NCAP) 0
60000 Far Counts (FCAP) 0
100000 FAR INTEL CT (FSIN) 0
10000(NEAR INTEL CT (NSIN) 0
ET INL NEAR (NNII
20000 -1000

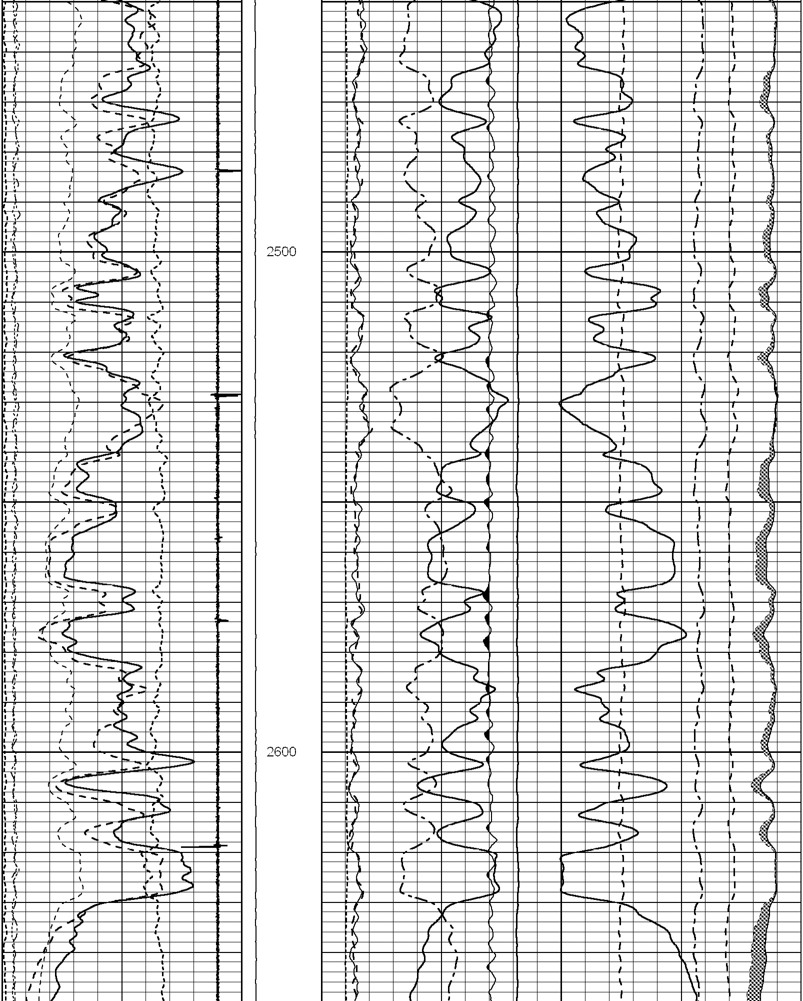


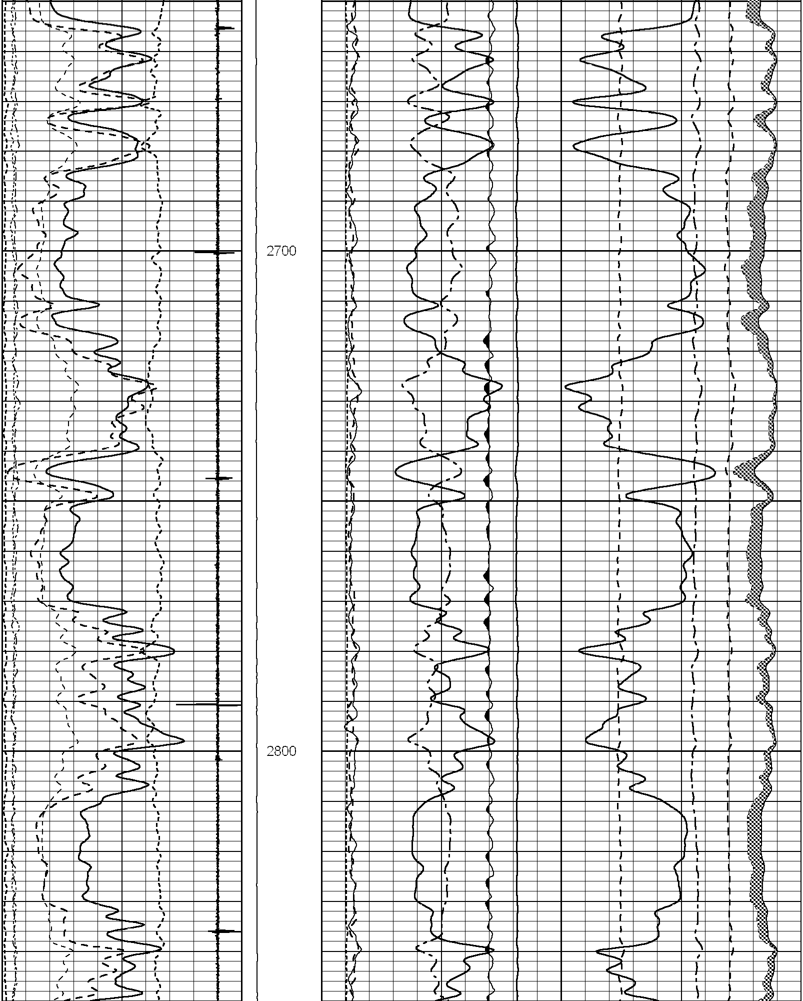


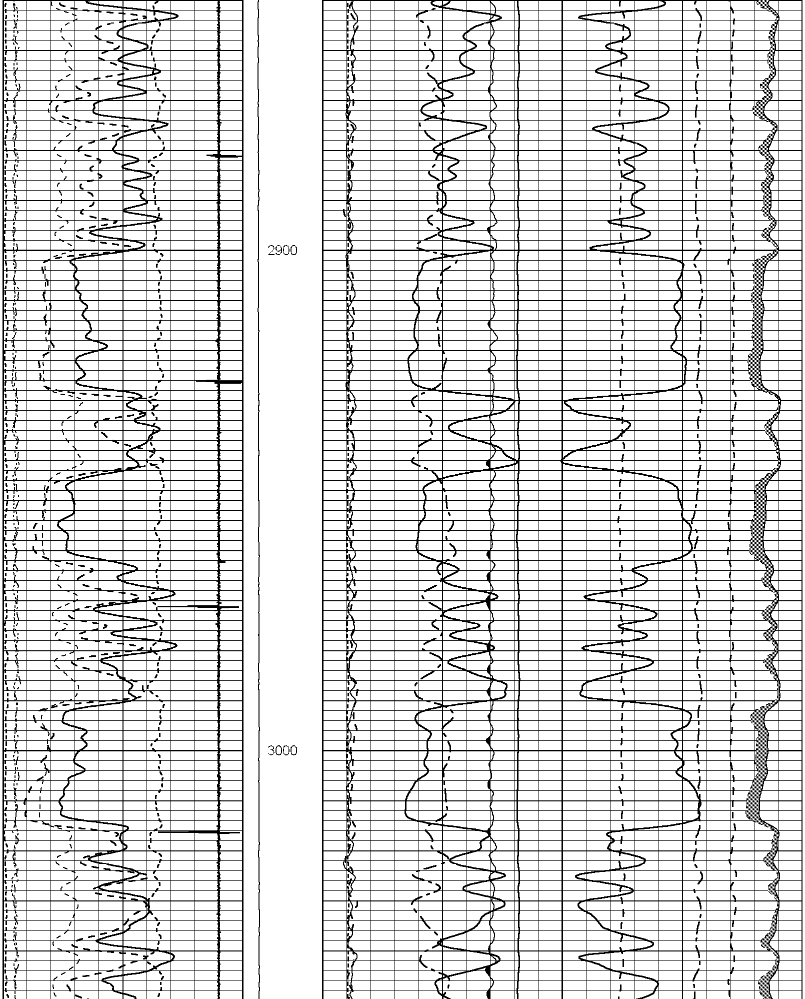


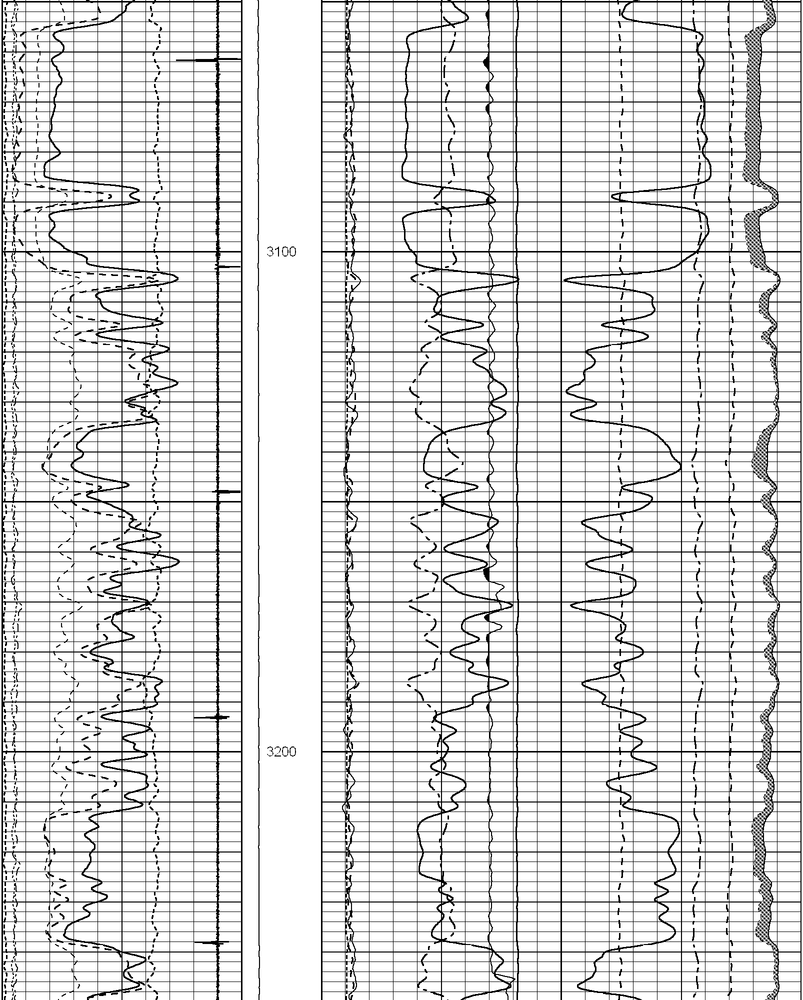


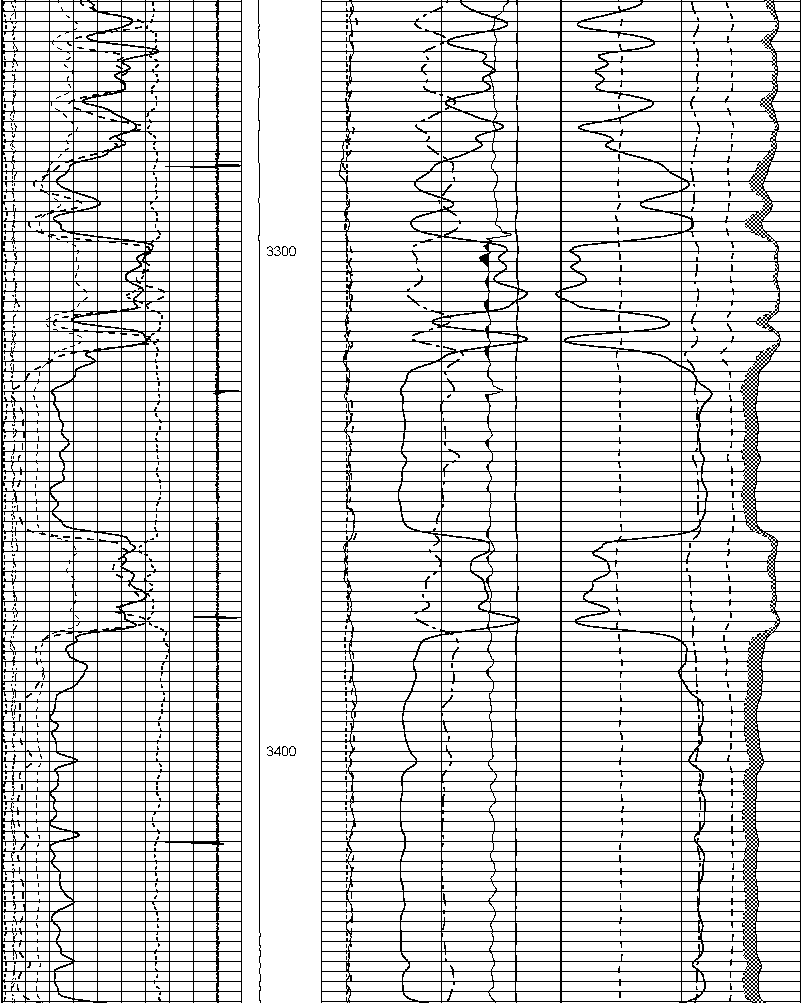


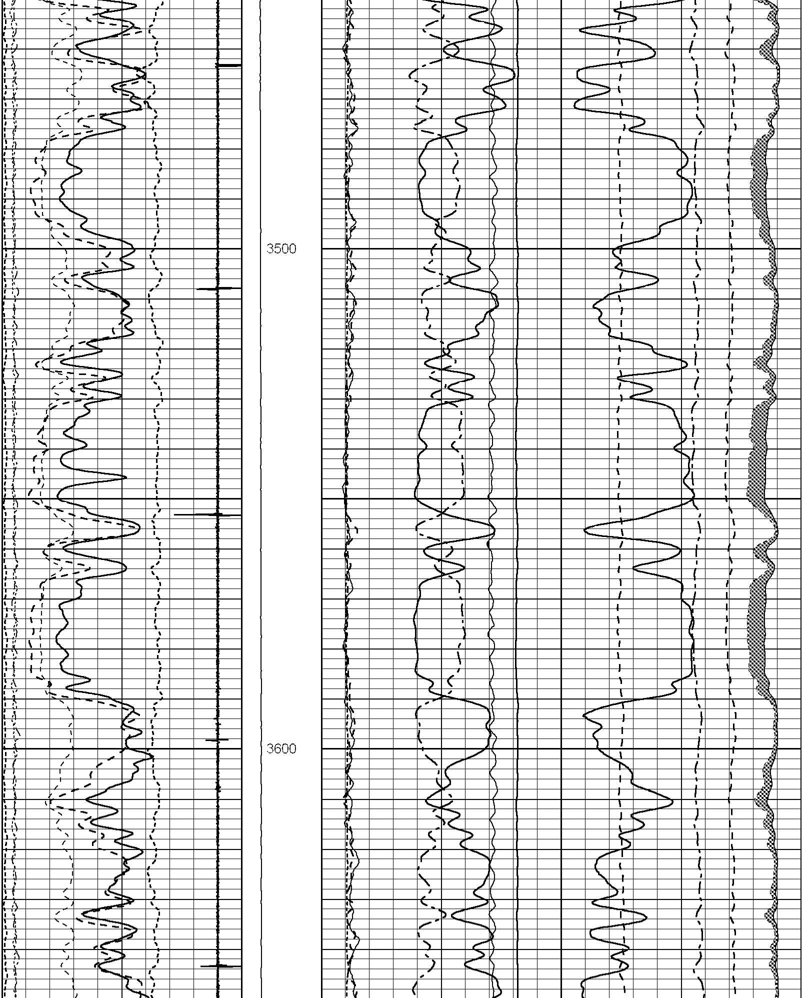


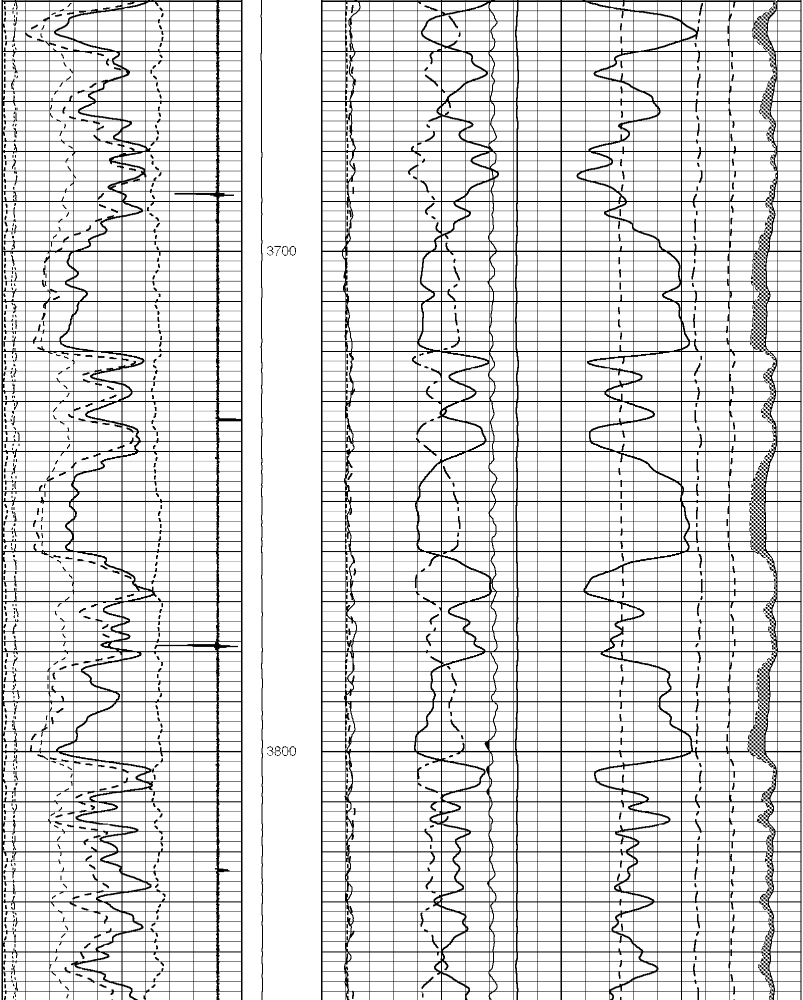


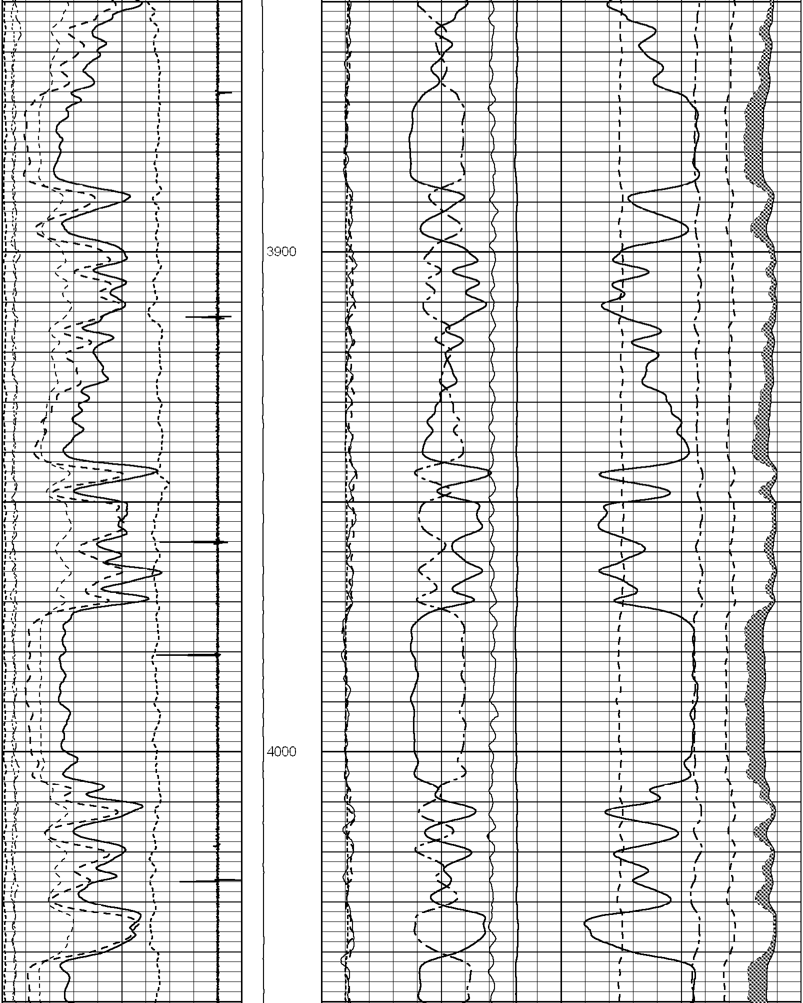


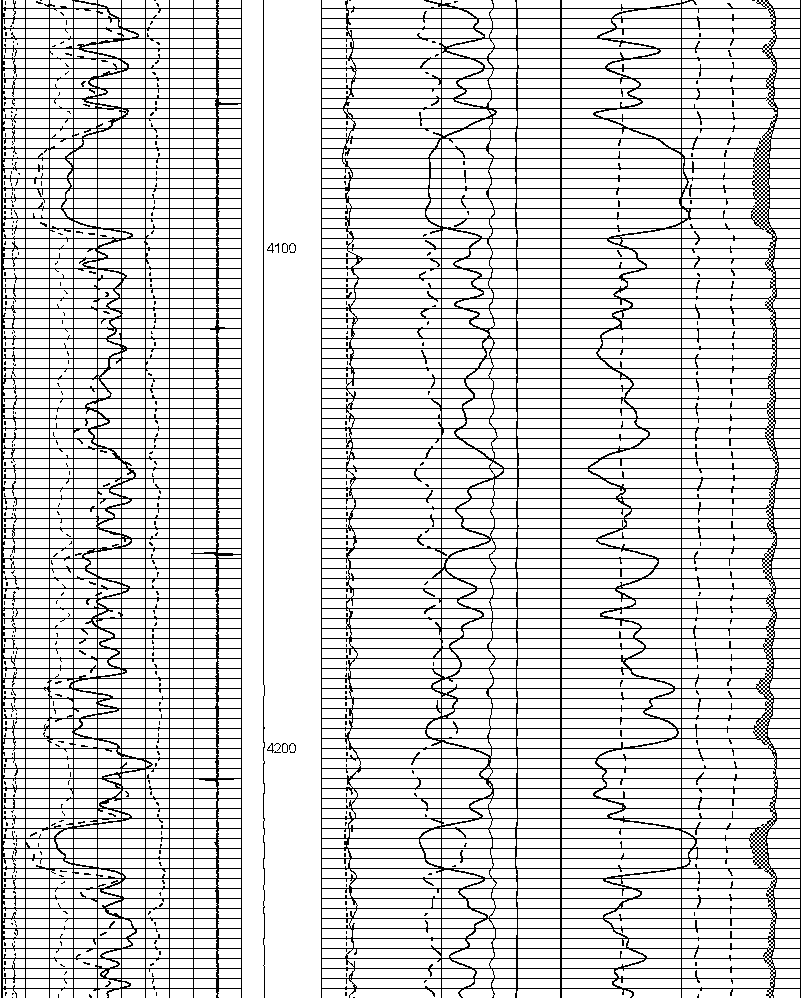


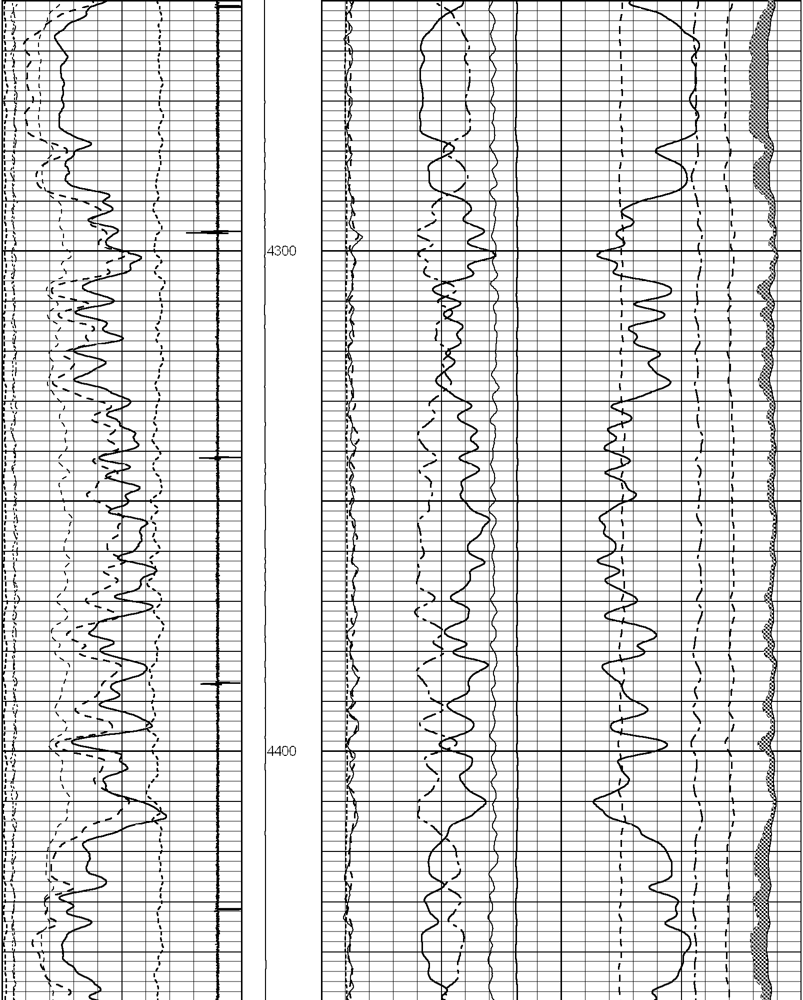


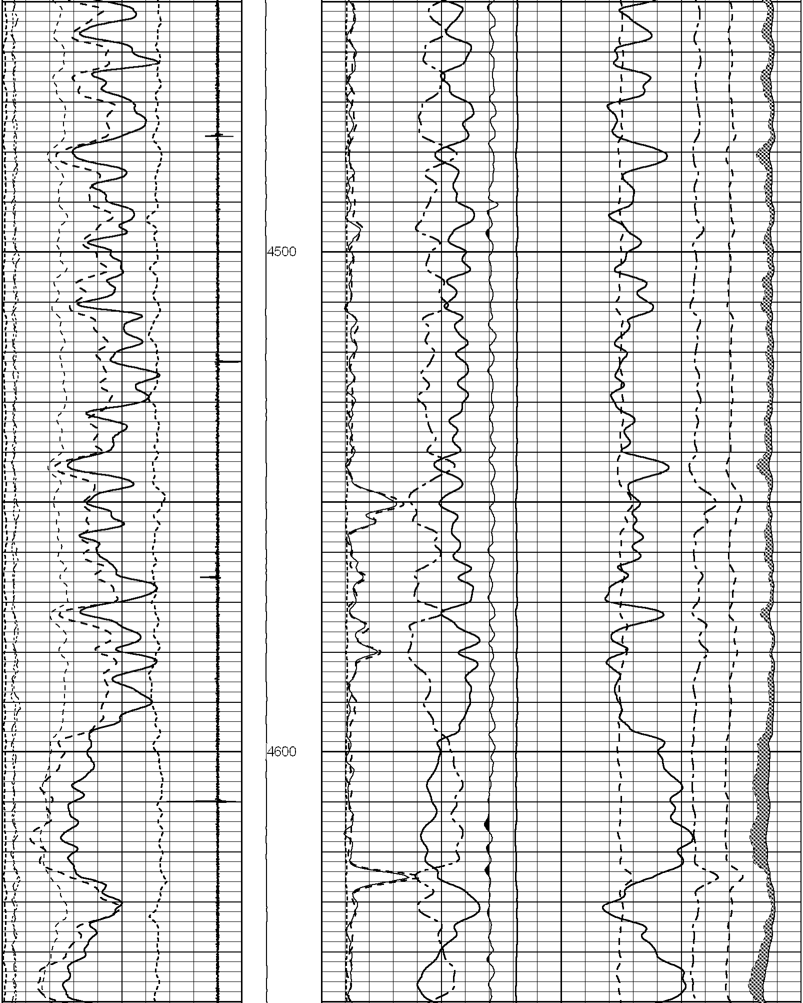


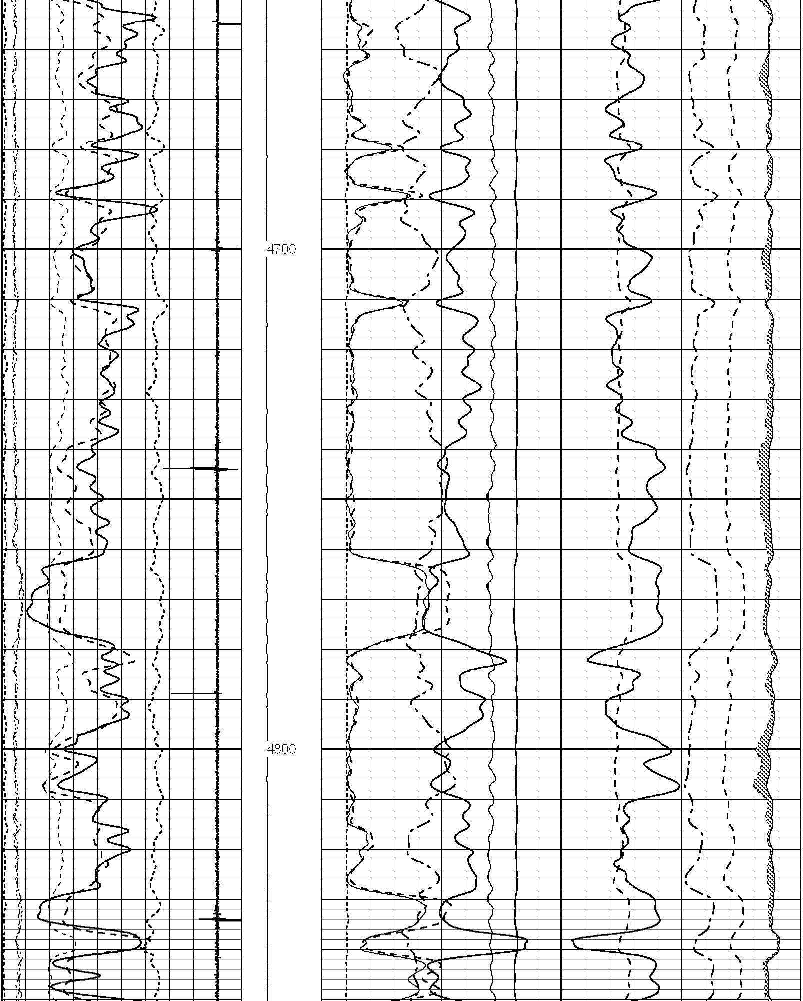


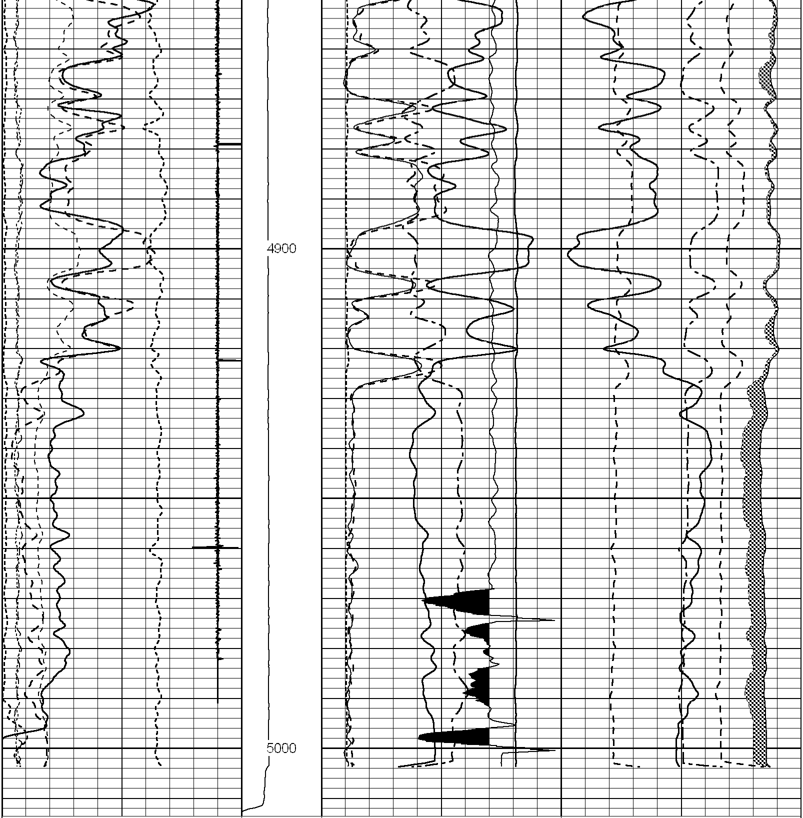












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0 OAI 100
10 FAR FIT ERR (SGFF) (cu) 40
0 GR (GAPI) 200
0 NEAR FIT ERR (SGFN) (cu) 100
-450 CCL 50
0 IN FIT ERR (CFTR1) NEAR 1
0 IN FIT ERR CFTR2) FAR 1

TENSION
0 (lb)3000

50 CS (ft/min) 0
60 SIGMA FORM(SGFM) (cu) 0
7 RATIO (RNF) 1
0 RIN 15
0 RICF 6
0 H YIELD (YH2) 1
0 H YIELD (YH1) 1

INOX2
-1500 1500

60000 Near Counts (NCAP) 0
60000 Far Counts (FCAP) 0
100000 FAR INTEL CT (FSIN) 0
10000(NEAR INTEL CT (NSIN) 0
ET INL NEAR (NNI
20000 -1000

MAIN SECTION

HALLIBURTON

5" = 100'

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REPEAT SECTION

5" = 100'

Database File: reppo_34_15b_rmt.db
Dataset Pathname: REPT1
Presentation Format: rmt_main
Dataset Creation: Fri Dec 04 16:02:19 2009 by Log Halliburton Casedho
Charted by: Depth in Feet scaled 1:240

200 Near Bore Si (SGBN) (cu) 0
0 OAI 100
10 FAR FIT ERR (SGFF) (cu) 40
0 GR (GAPI) 200
0 NEAR FIT ERR (SGFN) (cu) 100
-450 CCL 50
0 IN FIT ERR (CFTR1) NEAR 1
0 IN FIT ERR CFTR2) FAR 1

TENSION
0 (lb 3000

50 CS (ft/min) 0
60 SIGMA FORM(SGFM) (cu) 0
7 RATIO (RNF) 1
0 RIN 15
0 RICF 6
0 H YIELD (YH2) 1
0 H YIELD (YH1) 1

INOX2
-1500 1500

60000 Near Counts (NCAP) 0
60000 Far Counts (FCAP) 0
100000 FAR INTEL CT (FSIN) 0
10000 NEAR INTEL CT (NSIN) 0
ET INL NEAR (NNII
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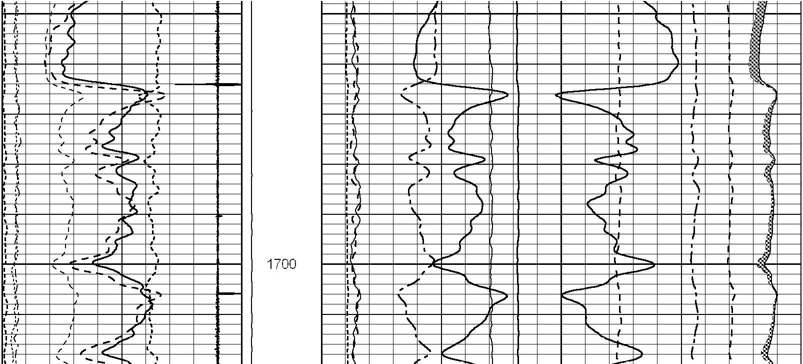
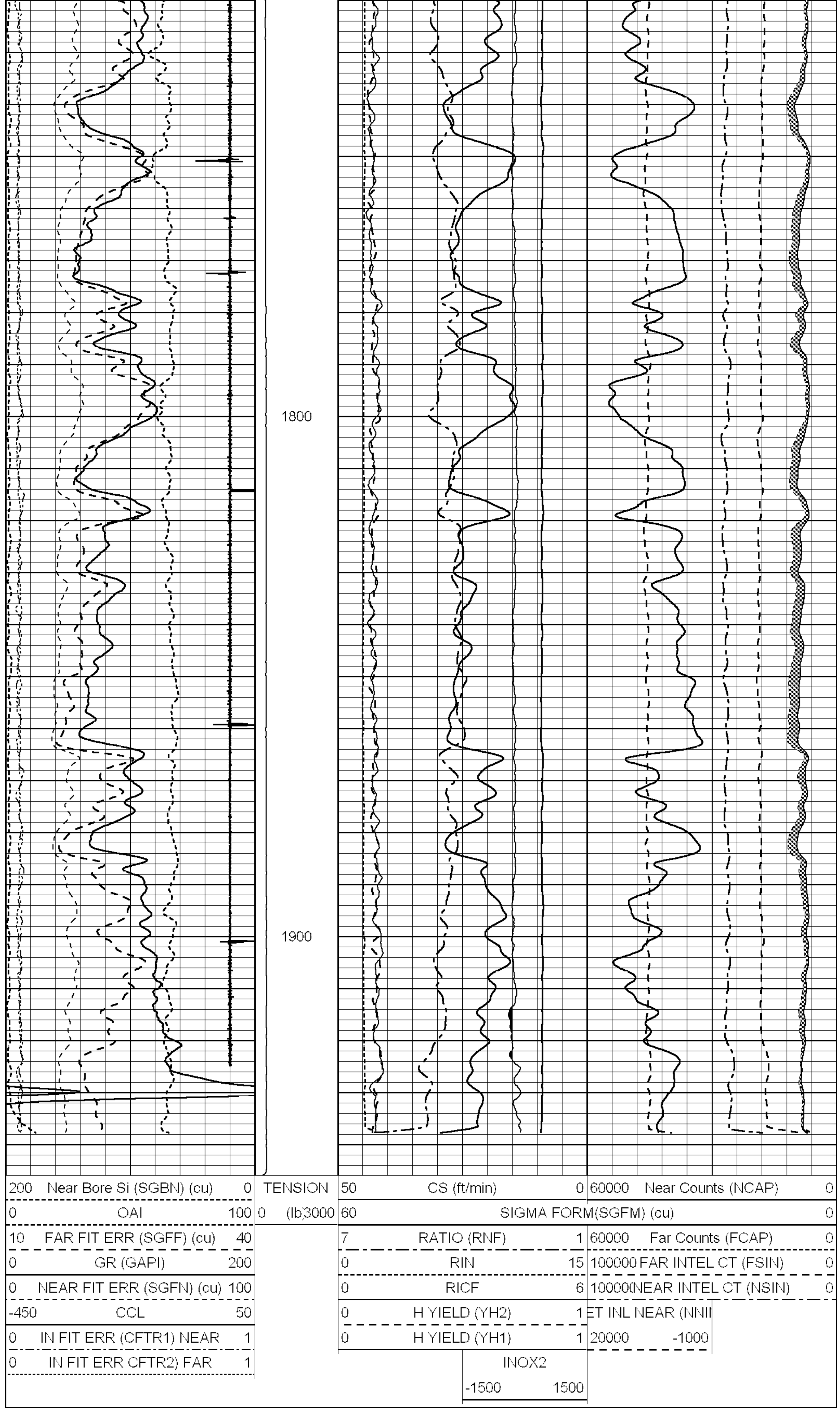




HALLIBURTON

REPEAT SECTION

5" = 100'

Calibration Report

Database File: reppo_34_15b_rmt.db
Dataset Pathname: MAINF
Dataset Creation: Fri Dec 04 17:08:36 2009

Reservoir Monitor Tool Elite Calibration Report

Serial-Model: U658-A

Shop Calibration Performed: Wed Nov 25 17:09:27 2009

Linearity Results (Generator Off)

Near Detector 7 Peaks Found

Channel	Amplitude	FWHM
52.40	0.01013	4.84
95.82	0.00505	5.42
108.47	0.00821	6.99
136.65	0.00034	7.43
149.74	0.00029	8.91
183.66	0.00078	8.17
197.86	0.00062	9.03
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00

Near Detector
H Position 52.40 C Position 108.47 FE Position 183.66
Linearity Correction 3.16

Far Detector 7 Peaks Found

Channel	Amplitude	FWHM
52.41	0.01538	4.79
95.36	0.00198	4.16
108.00	0.00710	7.24
137.29	0.00017	4.72
150.22	0.00053	8.76
184.42	0.00079	7.40
198.30	0.00120	9.75
0.00	0.00000	0.00
0.00	0.00000	0.00
0.00	0.00000	0.00

Far Detector
H Position 52.41 C Position 108.00 FE Position 184.42
Linearity Correction 3.97

Carbon/Oxygen Mode

Stabilization

	Reading	Range
GENV	73.17	70 - 100 Volts
RAW ITCR2	3362.04	3000 - 3500 CPS

Near Detector

	Channel	Expected	Amplitude	FWHM
H	46.39	52	0.0340	4.75
FE	197.91	198	0.0978	----

NGAIN = 0.964 NZOFF = 7.784

Far Detector

	Channel	Expected	Amplitude	FWHM
H	46.57	52	0.0508	4.76
FE	199.92	198	0.0973	----

FGAIN = 0.965 FZOFF = 7.533

	Result	Expected
COIR2	0.439	0.42 - 0.48
LIRI2	1.421	1.20 - 1.60
RICF	0.801	0.70 - 0.90
TCCR2	3986.89	3000 - 5000 CPS
ITCR2	3193.18	2000 - 4000 CPS

Capture Mode

Stabilization

	Reading	Range
GENV	78.99	70 - 100 Volts
FCAP	9597.97	9500 - 10500 CPS

Result	Logged	Expected Value	Diff.	Tol.	Units
Ratio Normalizer	5.00	4.60	0.10	+/- 0.70	
Ratio Inel Norm	1.07	1.00	0.07	+/- 0.15	
Near Spaced Count	10834.21	8100 - 13000			CPS
Far Spaced Count	10524.44	9000 - 11000			CPS
Sigma Form Near	23.63	23.50	0.13	+/- 1.00	C.U.
Sigma Bore Near	77.22	77.00	0.22	+/- 8.00	C.U.
Sigma Form Far	22.29	22.50	-0.11	+/- 0.50	C.U.
Ratio Near/Far	1.03	1.10	-0.02	+/- 0.15	
Ratio Bore/Form	0.34	0.34	-0.02	+/- 0.04	
Near Error	0.70	<5.00			
Far Error	1.20	<5.00			
Near Background	120.75	<1000			
Far Background	95.15	< 500			
Near Resolving Time	0.973	0.0 - 2.0			
Far Resolving Time	0.975	0.0 - 2.0			

Calibration Software Modules

PNLS Module	2009.3.6.0
RMTE Module	2009.4.9.999

Gamma Ray Calibration Report

Type / Serial: B / B095

SHOP CALIBRATION Fri Dec 04 10:58:24 2009

	Counts/Sec.	Gain	Offset	Jig	Units
Background	146.6				cps
Calibrator	529.8				cps
		0.5532			GAPI/cps

PRIMARY VERIFICATION Fri Dec 04 11:02:17 2009

Background	80.7		cps
Calibrator	290.6		cps
Difference		209.9	GAPI

BEFORE SURVEY VERIFICATION

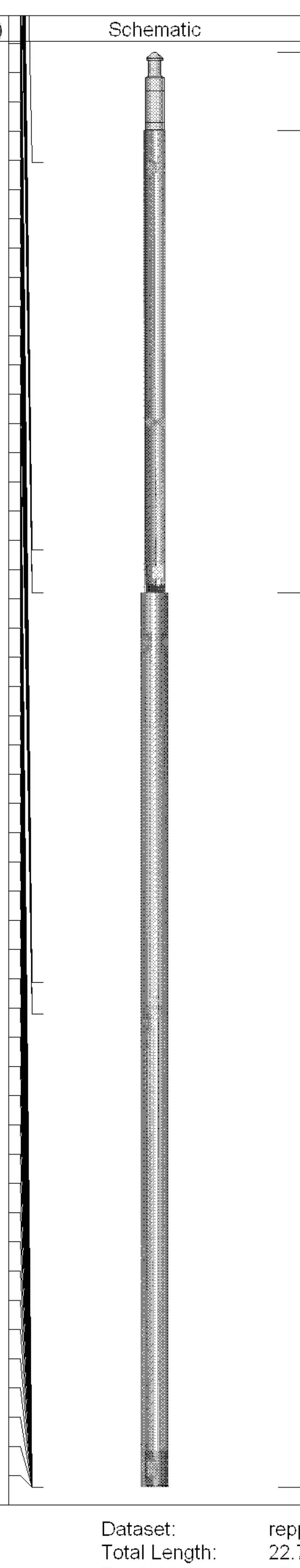
Background	0.0		cps
Calibrator	0.0		cps
Difference		0.0	GAPI

AFTER SURVEY VERIFICATION

Background	0.0		cps
Calibrator	0.0		cps
Difference		0.0	GAPI

Sensor	Offset (ft)
FINEL	8.00
FCAP	8.00
FBACK	8.00
TFGT	8.00
NINEL	7.50
NCAP	7.50
NBACK	7.50
TNGT	7.50
NINEL	7.50
NCAP	7.50
NBACK	7.50
TNGT	7.50
LLMTEN	0.00
REPV	0.00
REPI	0.00
GENV	0.00
GENI	0.00
ISV	0.00
ISI	0.00
IONI	0.00
LSHV	0.00
SSHV	0.00
ROMTEMP	0.00
FLASKTEMP	0.00
CNTL	0.00
GNCTL	0.00
SPECSTAT	0.00
FSTAT	0.00
HEADV	0.00
SHUNTI	0.00
TTTCSTAT	0.00
SPECTRUMCO	0.00
REPV	0.00
REPI	0.00
GENV	0.00
GENI	0.00
ISV	0.00
ISI	0.00
IONI	0.00
LSHV	0.00
SSHV	0.00
ROMTEMP	0.00
FLASKTEMP	0.00
CNTL	0.00
GNCTL	0.00
SPECSTAT	0.00
FSTAT	0.00
ShuntI	0.00
HeadV	0.00
TTTCStat	0.00

Schematic



Description	Len (ft)	OD (in)	Wt (lb)
STND_CH 1.4375 IN CABLE HEAD	1.25	1.44	1.00
TTTC-B (B095) Thru Tubing Telemetry Cartridge	7.33	1.69	24.00
RMTE-A (U658) RMTE	14.17	2.13	77.00

Dataset: reppo_34_15b_rmt.db: field/well/run1/MAINF
Total Length: 22.75 ft
Total Weight: 102.00 lb
O.D. 2.13 in

Company LARAMIE ENERGY II
Well REPPO 34-15B
Field GRAND VALLEY
County GARFIELD State CO

HALLIBURTON

RESERVOIR MONITOR
TOOL ELITE