

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY		NOBLE ENERGY	
WELL		MCNEIL FEDERAL 35-33D	
FIELD		RULISON	
COUNTY		GARFIELD	
STATE		CO	
Permanent Datum		GL	Elev: 5582.0 ft
Log measured from		KB	Elev: 5586.0 ft
Drilling measured from		KB	Elev: 5562.0 ft
Date	19-Oct-09		
Run No.	ONE		
Depth - Driller	1523.00 ft		
Depth - Logger	1520.0 ft		
Bottom - Logged Interval	1515.0 ft		
Top - Logged Interval	25.0 ft		
Casing - Driller	16,000 in @ 104.0 ft	@	
Casing - Logger	107.0 ft		
Bit Size	12.250 in		
Type Fluid in Hole	LSND	@	
Density	8.8 ppq	54.00 s/qt	
PH	10.10 pH	6.8 cpm	
Source of Sample			
Rm @ Meas. Temperature	1.01 ohmm @ 67.20 degF	@	
Rmf @ Meas. Temperature	0.80 ohmm @ 66.50 degF	@	
Rmc @ Meas. Temperature	1.12 ohmm @ 71.30 degF	@	
Source Rmf	MEAS.		
Rm @ BHT	0.64 ohmm @ 109.2 degF	@	
Time Since Circulation	3.9 hr		
Time on Bottom	19-Oct-09 08:19		
Max. Rec. Temperature	109.2 degF @ 1520.0 ft	@	
Equipment	Location	GL, CO	
Recorded By	K. WOOD	M. HUNT	
Witnessed By	L. PORTER		

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Service Ticket No.: 6956422		API Serial No.: 05-045-1582900		PGM Version: WL INSITE R2.4 (Build 20)				
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE				RESISTIVITY SCALE CHANGES				
Date	Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole	
Depth-Driller								
Type Fluid in Hole								
Density	Viscosity							
Ph	Fluid Loss							
Source of Sample				RESISTIVITY EQUIPMENT DATA				
Rm @ Meas. Temp	@	@		Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rmf @ Meas. Temp.	@	@		ONE	ACRT	N/A	1.5" S.O.	N/A
Rmc @ Meas. Temp.	@	@			90194258-			
Source Rmf	Rmc	CALC	CALC		E7486-			
Rm @ BHT	0.64 ohmm @ 109.2 degF	@						
Rmf @ BHT	0.51 ohmm @ 109.2 degF	@						
Rmc @ BHT	0.71 ohmm @ 109.2 degF	@						
EQUIPMENT DATA								
GAMMA		ACOUSTIC		DENSITY		NEUTRON		
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE	
Serial No.	11004661	Serial No.		Serial No.	10951314	Serial No.	10917119	
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT	
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"	
Detector Model No.	GTET	Spacing		Log Type	GAM-GAM	Log Type	THERMAL	
Type	SCINT			Source Type	CS137	Source Type	AM241BE	

Length	°		LSA [Y/N]		Serial No.		207000		Serial No.		DSN-300			
Distance to Source	10'		FWDA [Y/N]		Strength		1.5 CI		Strength		15 CI			
LOGGING DATA														
GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON			
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	CSG	REC	0	200				30%	-10%	2.68 g/cc	30%	-10%	SAND
ONE	CSG	SURF	REC	0	200									
DIRECTIONAL INFORMATION														
Maximum Deviation			27.00 deg		@		KOP			@				
Remarks: RWCH-GTET-DSNT-SDLT-ACRT WERE RUN IN COMBINATION														
HOLE RUGOSITY AND TENSION PULLS MAY AFFECT LOG QUALITY														
ANNULAR HOLE VOLUME CALCULATED FOR 8.625" CASING														
CHLORIDES REPORTED AT 2800 mg/L														
MULTIPLE PASSES ATTEMPTED, MUD BUILD-UP AROUND DSNT & SDLT AFFECTED REPEATABILITY														
TEMPERATURE AT BOTTOM OF TOOL STRING: 101° F														
LATITUDE: 39.3929° N // LONGITUDE: 108.0709° W														
YOUR CREW TODAY: J. WILKERSON & J. NEFF						RIG: H&P 322								
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - GRAND JUNCTION, CO - (970) 523-3600														
<div>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 WHICH 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.</div> <div>HALLIBURTON</div>														



PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	12.250	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDWT	Borehole Fluid Weight	8.750	ppg
	SHARED	RMUD	Mud Resistivity	1.010	ohmm
	SHARED	TRM	Temperature of Mud	67.2	degF
	SHARED	OBM	Oil Based Mud System?	No	
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	8.625	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	1523.00	ft
	SHARED	BHT	Bottom Hole Temperature	109.2	degF
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Sandstone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in

DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT		Logging Horizontal Water Tank?	No	
SDLT	DNOK	Process Density?	Yes	
SDLT	DNOK	Process Density EVR?	No	
SDLT	AD	Is Hole Air Drilled?	No	
SDLT	CB	Use Calibration Blocks?	No	
SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT	DTWN	Disable temperature warning	No	
SDLT	MDTP	Weighted Mud Correction Type?	None	
SDLT	DMA	Formation Density Matrix	2.680	g/cc
SDLT	DFL	Formation Density Fluid	1.100	g/cc
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	MLOK	Process MicroLog Outputs?	Yes	
ACRt	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt	TPOS	Tool Position	Eccentered	
ACRt	RMOP	Rmud Source	Mud Cell	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm

BOTTOM

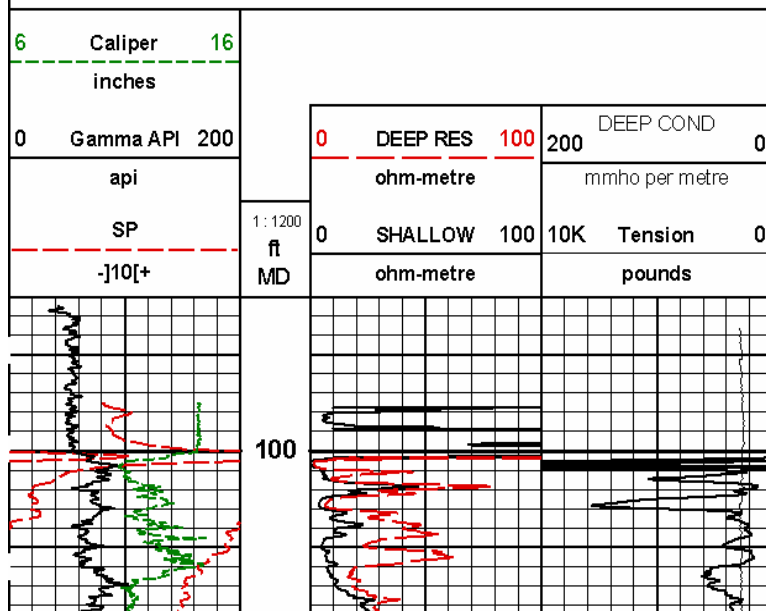
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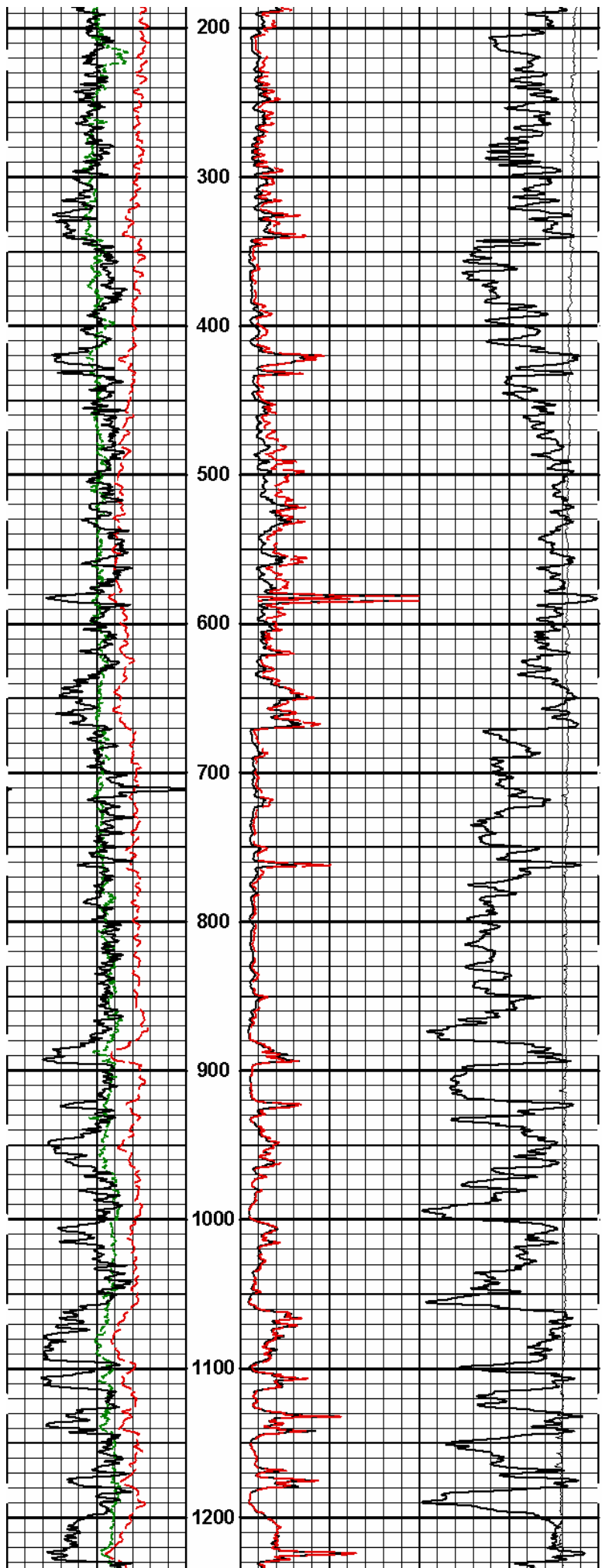
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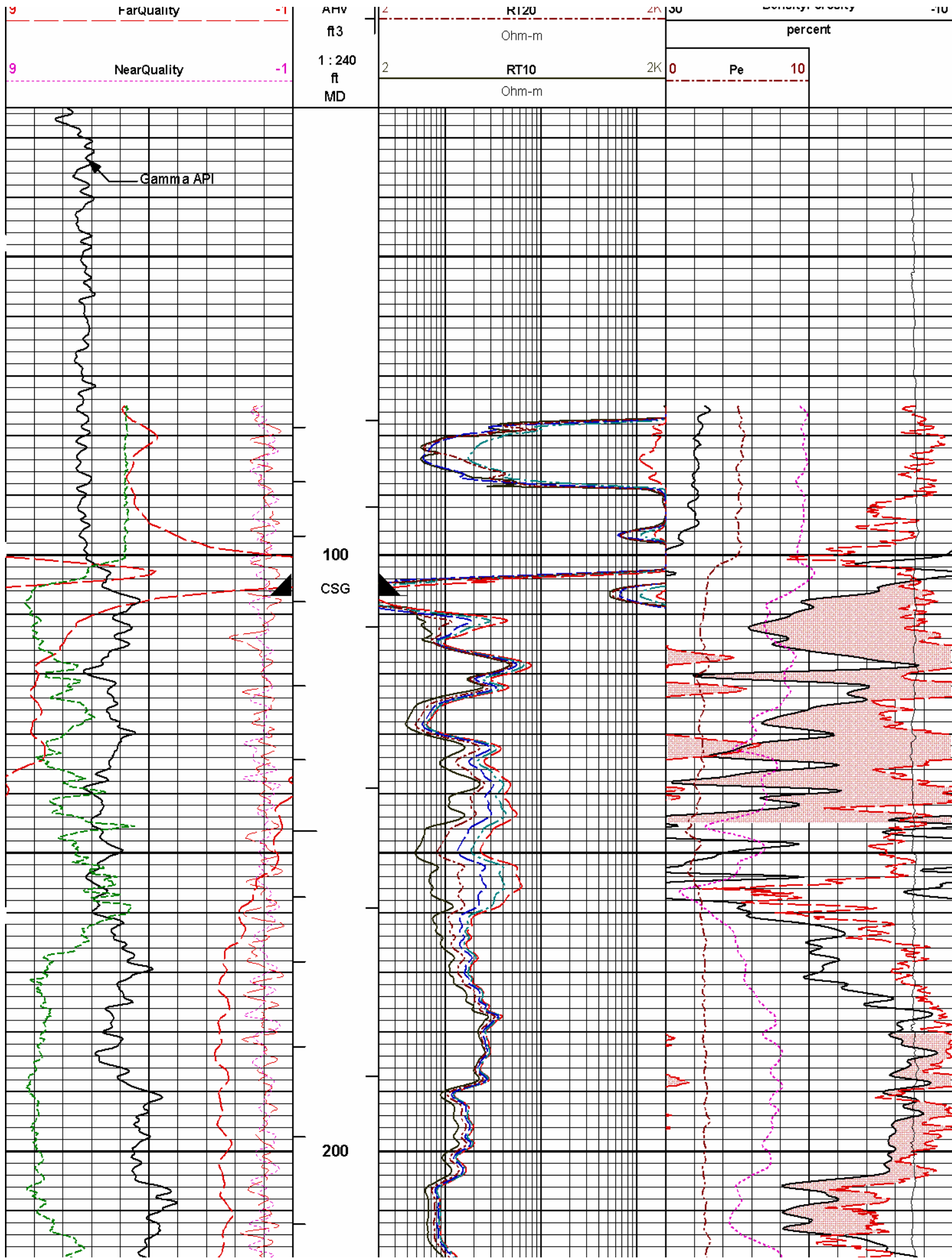
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Plot Range: 20 ft to 1535.83 ft
...NE_MCFED_35_33DIWell Based™
Plot File: \\TRIPLE\\IQ_ACRt_1IN_WILLIAMS

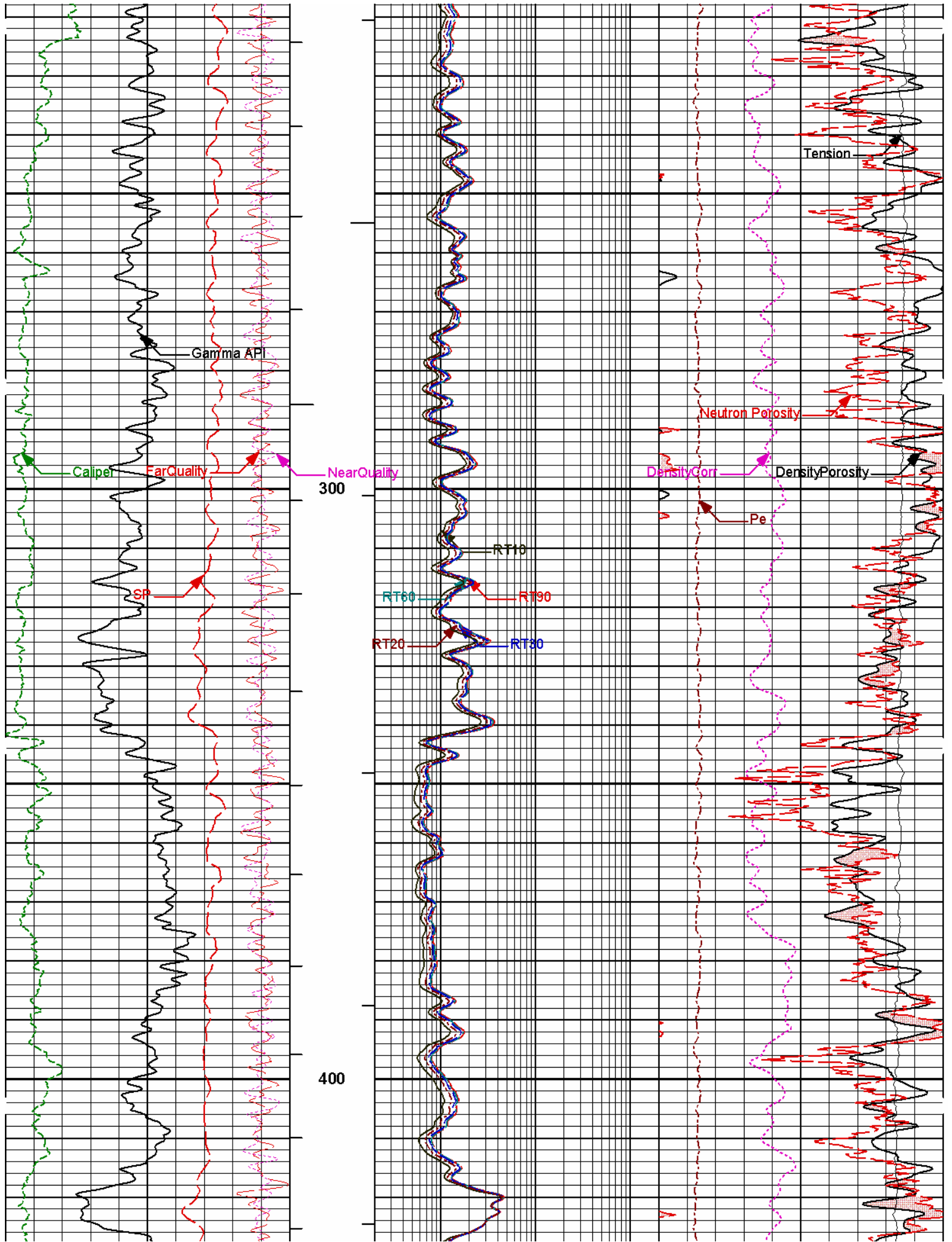
MAIN PASS 1" = 100' (HALF SCALE)

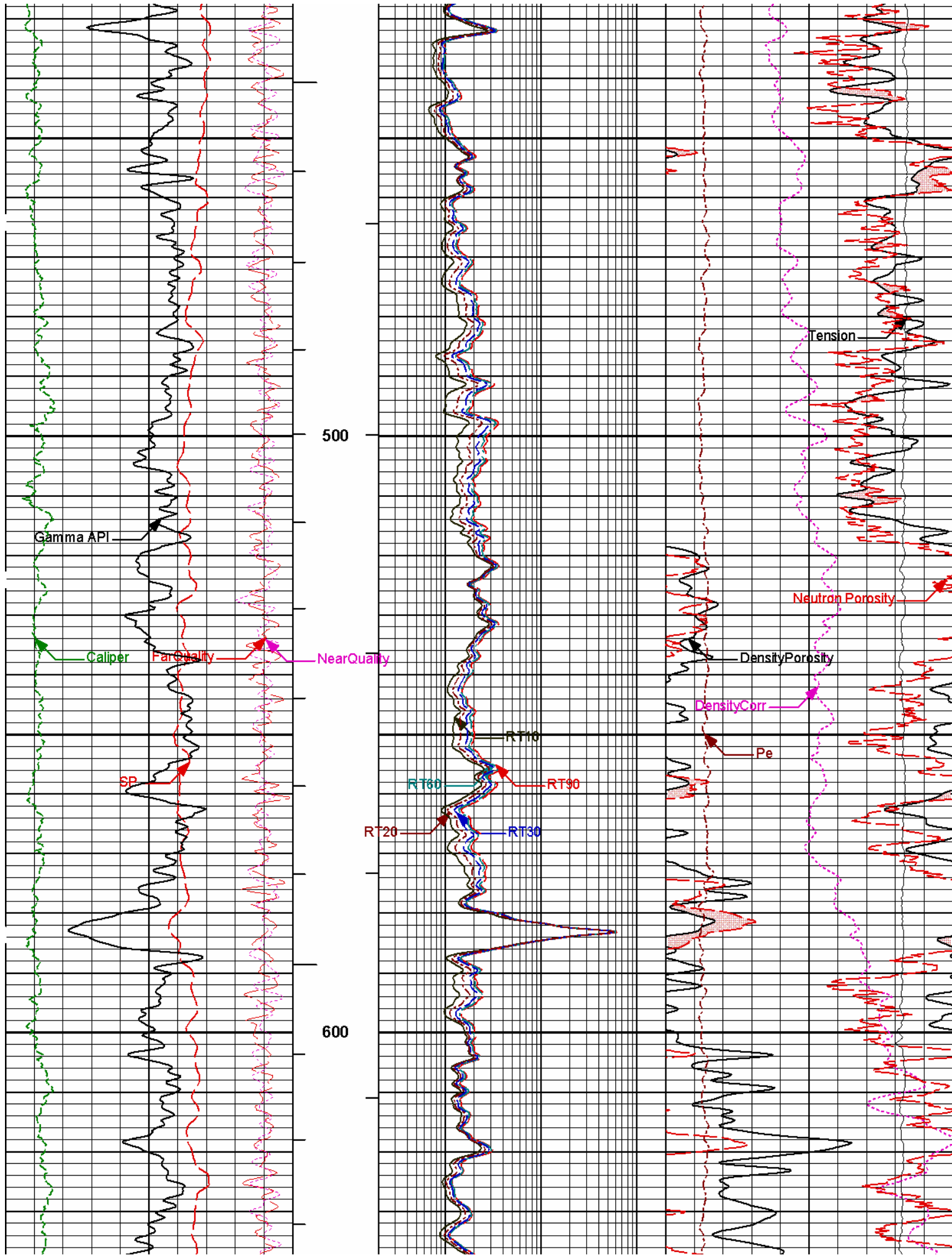


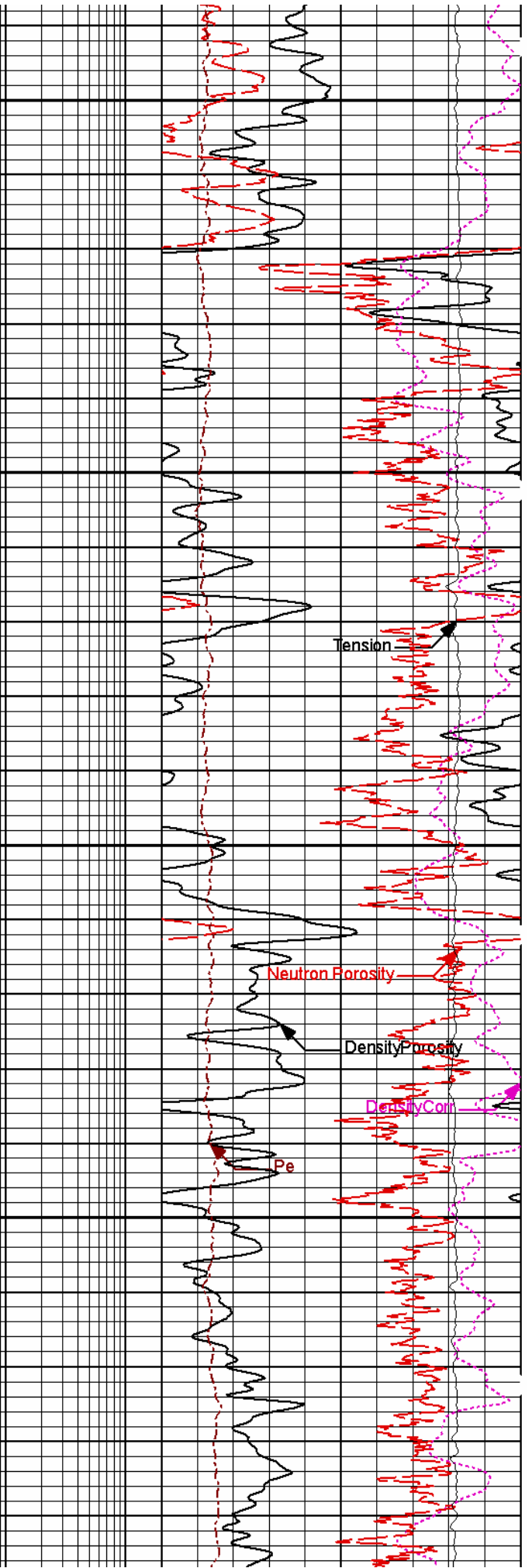
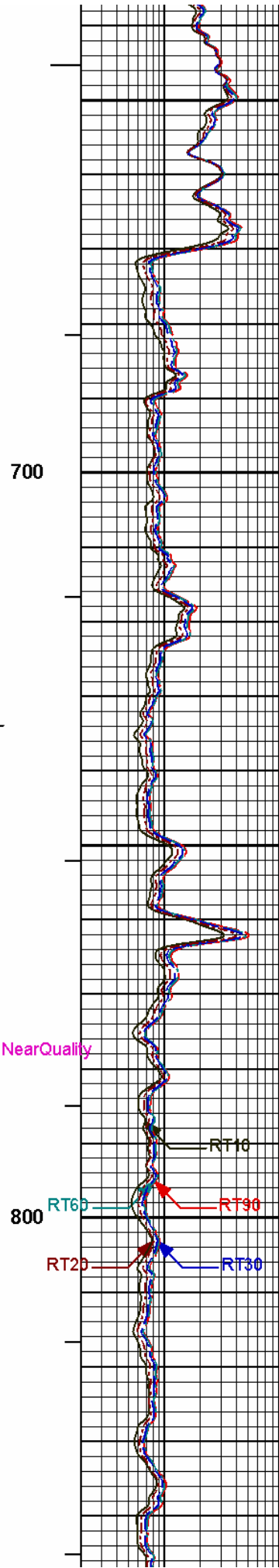
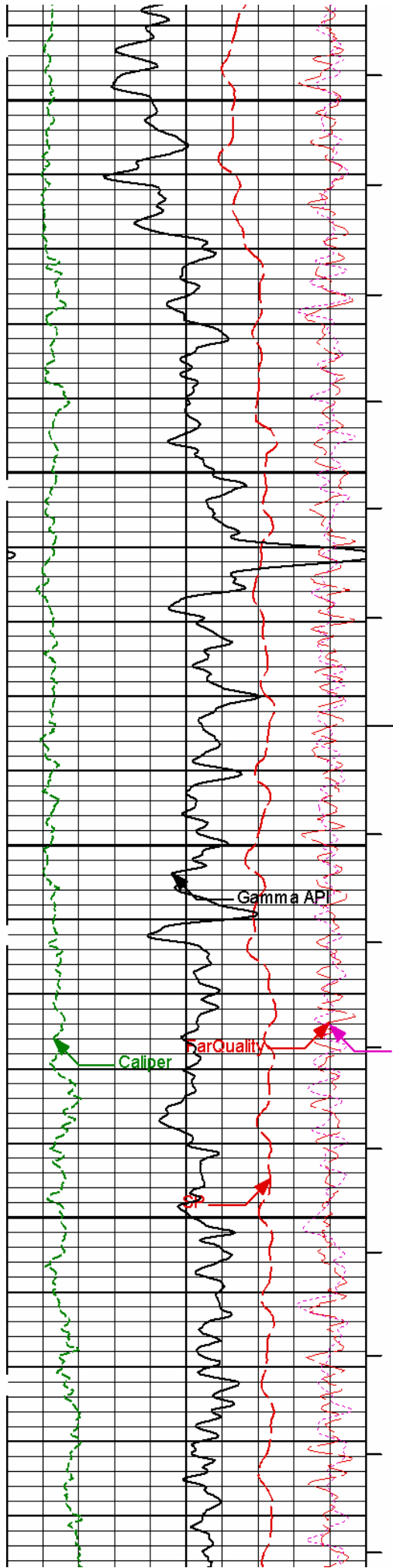


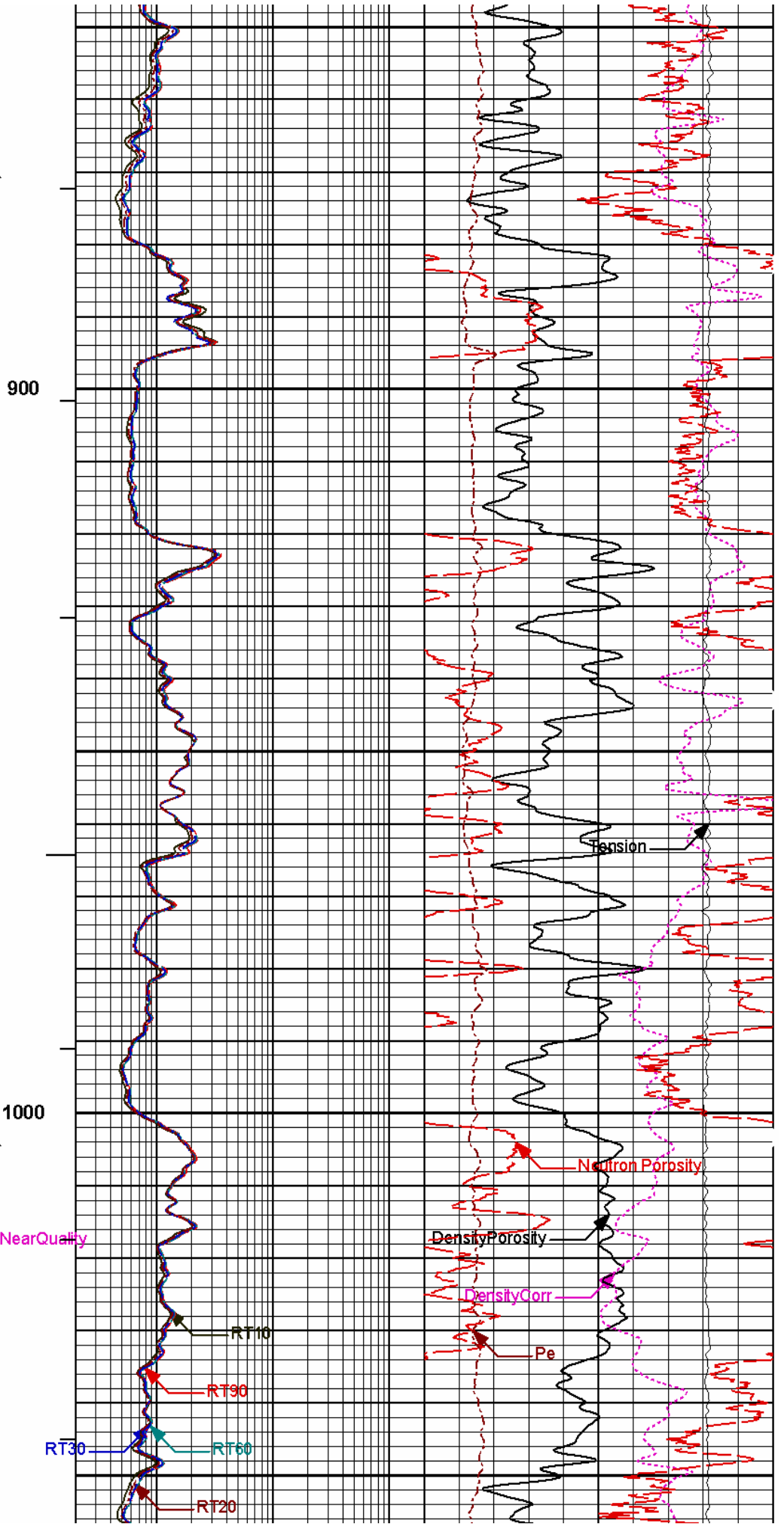
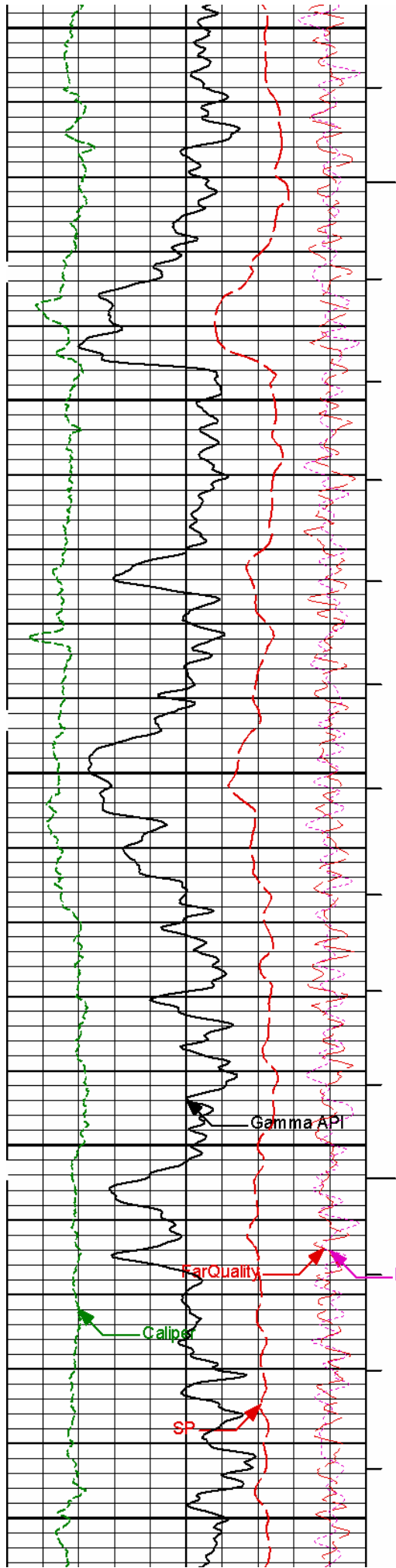
	SP		RT90	10000	Tension	0
	-J10[+		Ohm-m		pounds	
10	Caliper	20	RT60	-0.25	DensityCorr	0.25
	inches		Ohm-m		gram per cc	
0	Gamma API	200	RT30	30	Neutron Porosity	-10
	api	BHV ft3	Ohm-m		percent	
0	Gamma API	200	RT30	30	DensityPorosity	10

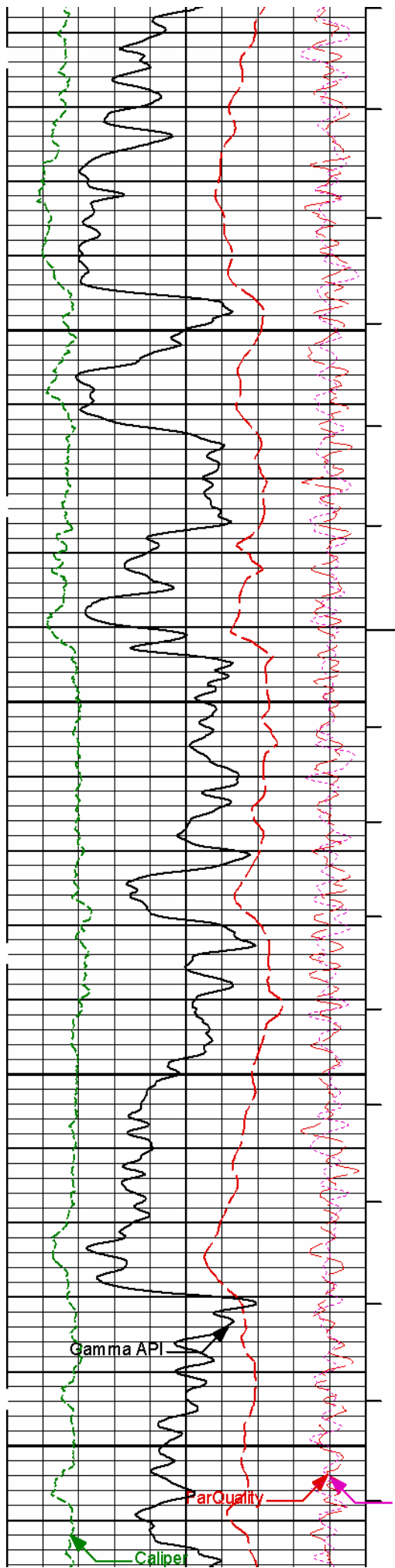






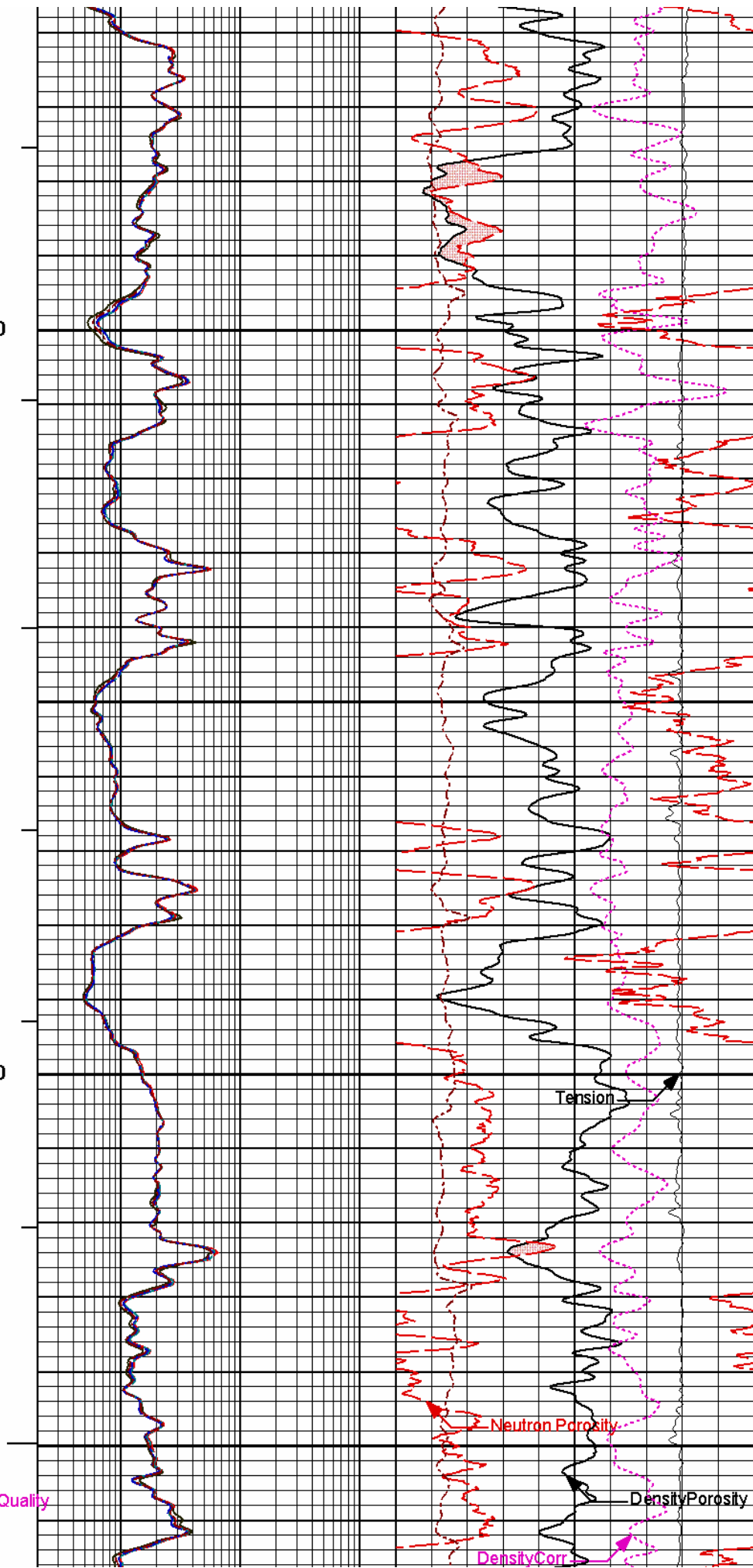


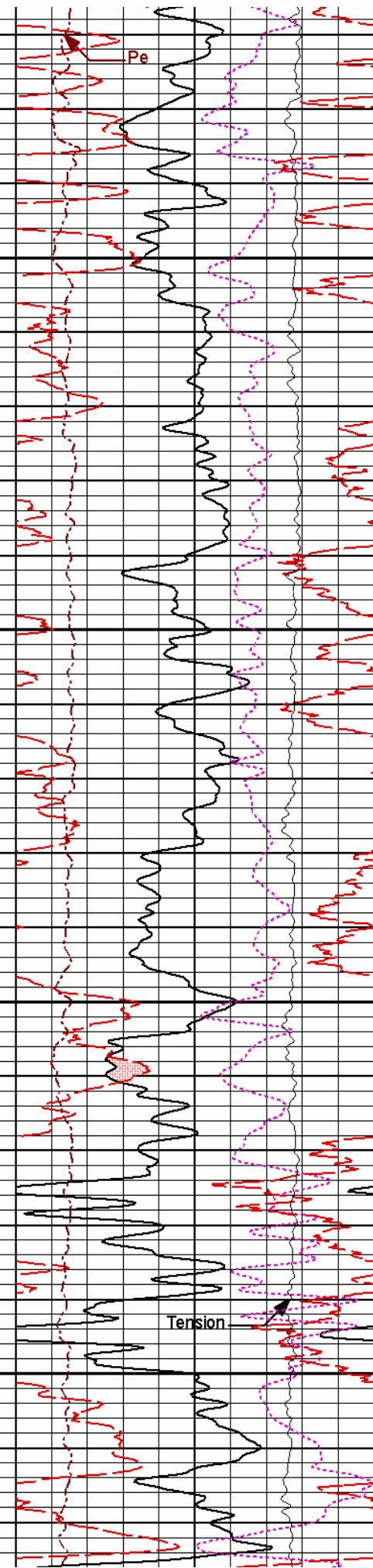
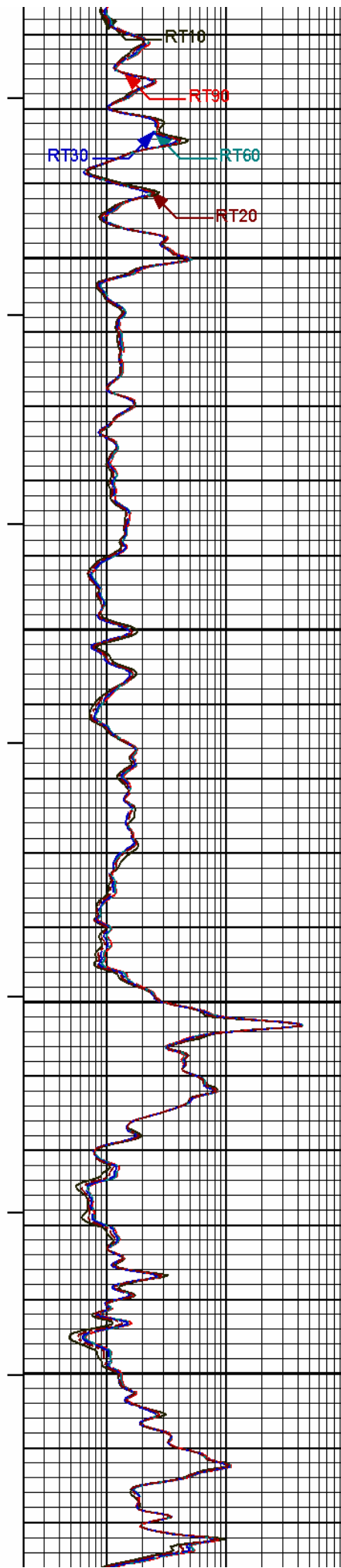
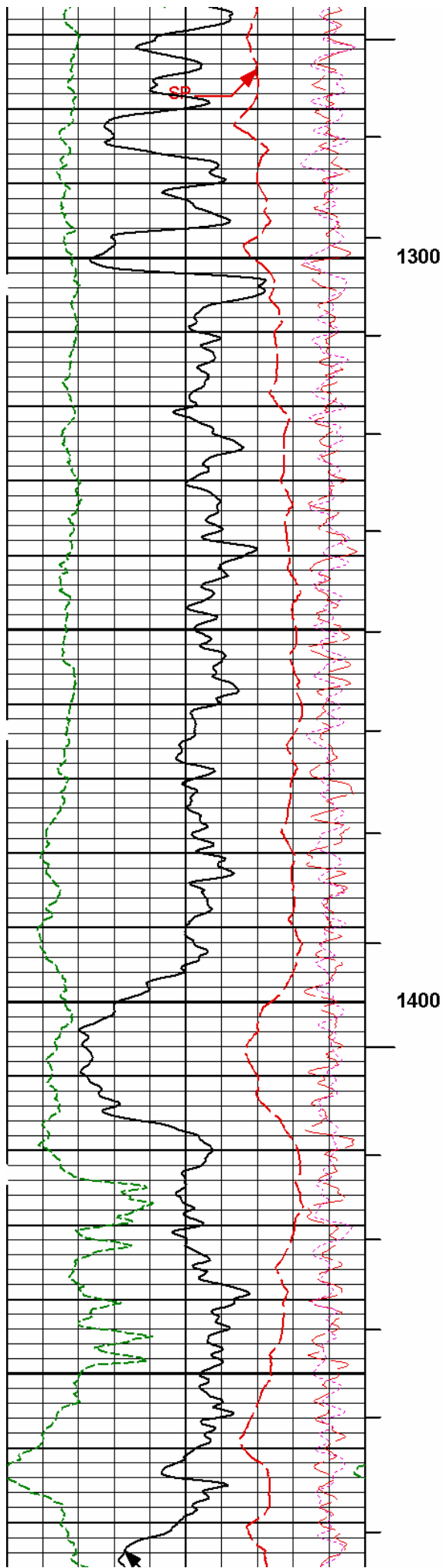


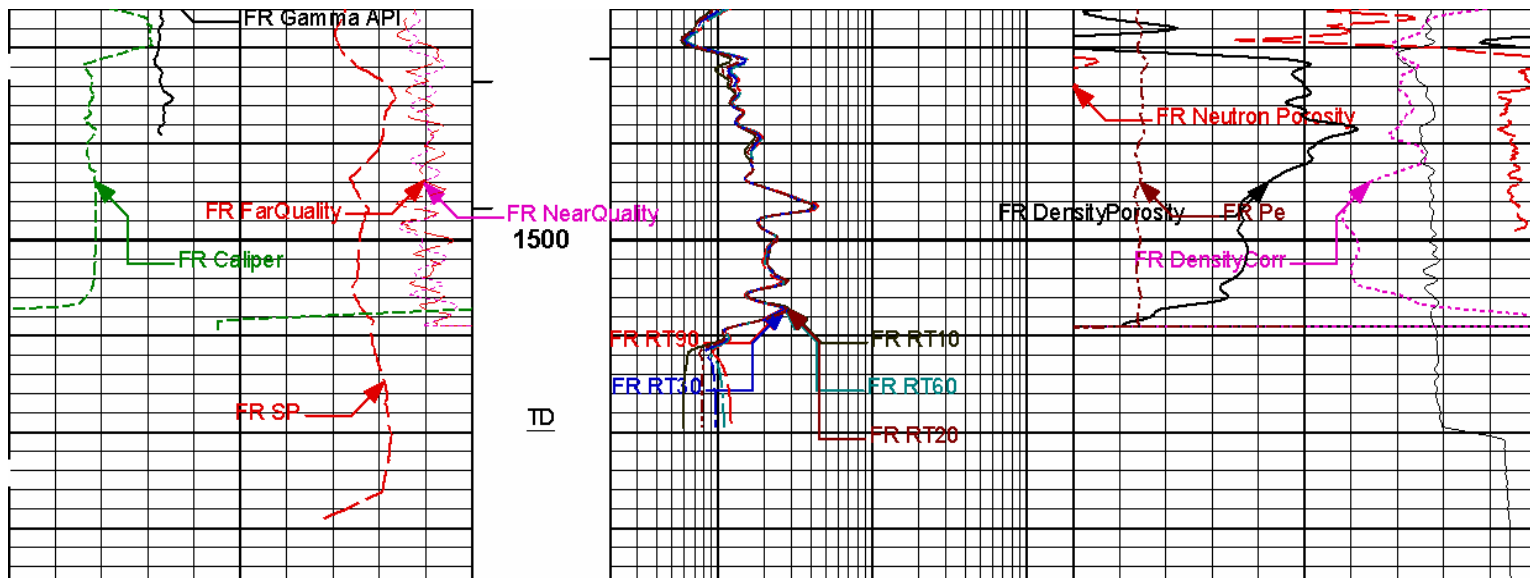


1100

1200







9	NearQuality	-1	1 : 240 ft MD	2	RT10	2K	0	Pe	10
9	FarQuality	-1	AHV ft3	2	RT20	2K	30	DensityPorosity	-10
0	Gamma API	200	BHV ft3	2	RT30	2K	30	Neutron Porosity	-10
	api			2	RT60	2K	-0.25	DensityCorr	0.25
10	Caliper	20		2	RT90	2K	10000	Tension	0
	inches							pounds	
	SP								
	-j10[+								

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Plot Time: 19-Oct-09 09:39:21
 Plot Range: 25 ft to 1535.83 ft
 Data: NE_MCFED_35_33DIWell Based*\n
 Plot File: \\TRIPLEIA-Triple-IQ

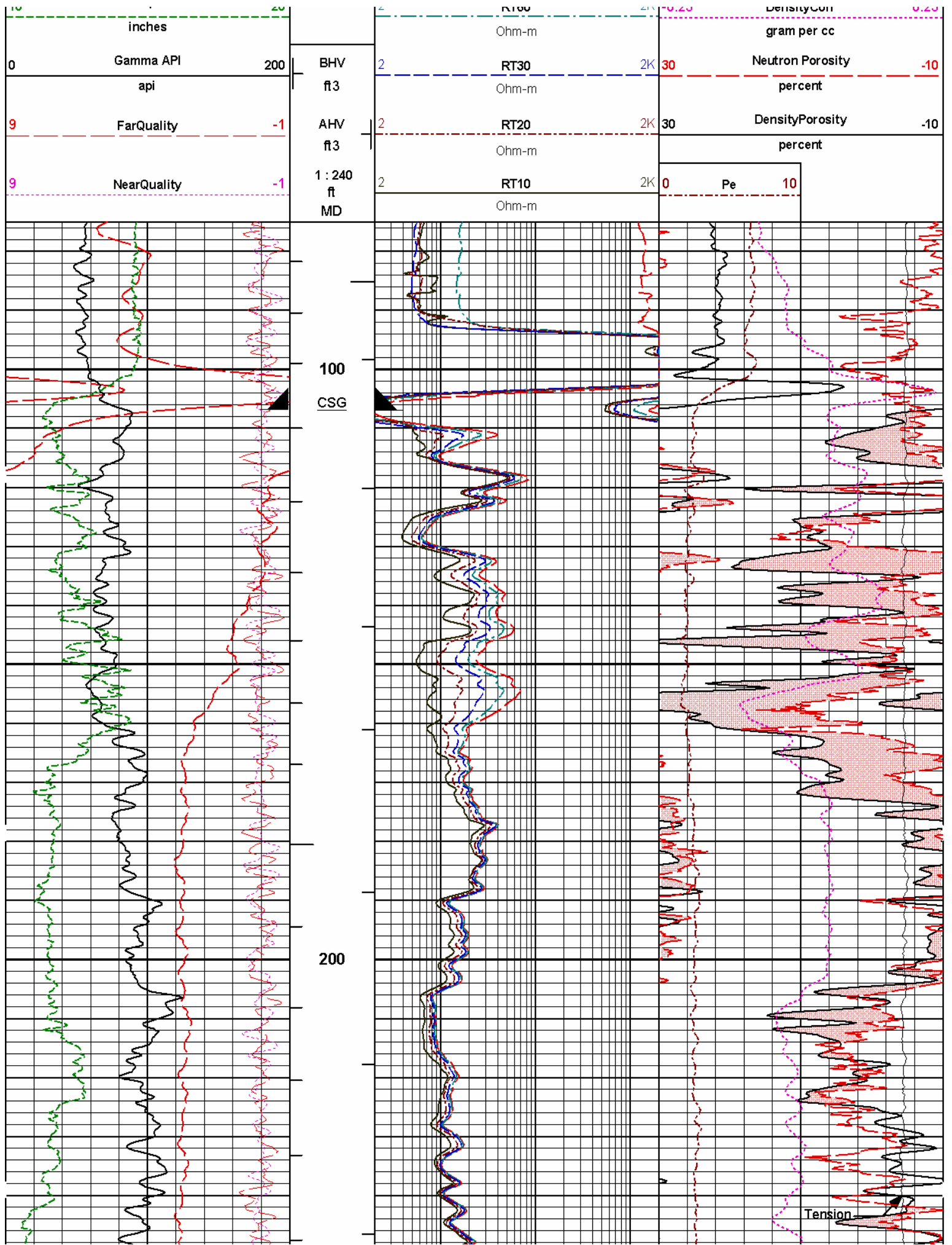
MAIN PASS 5" = 100'

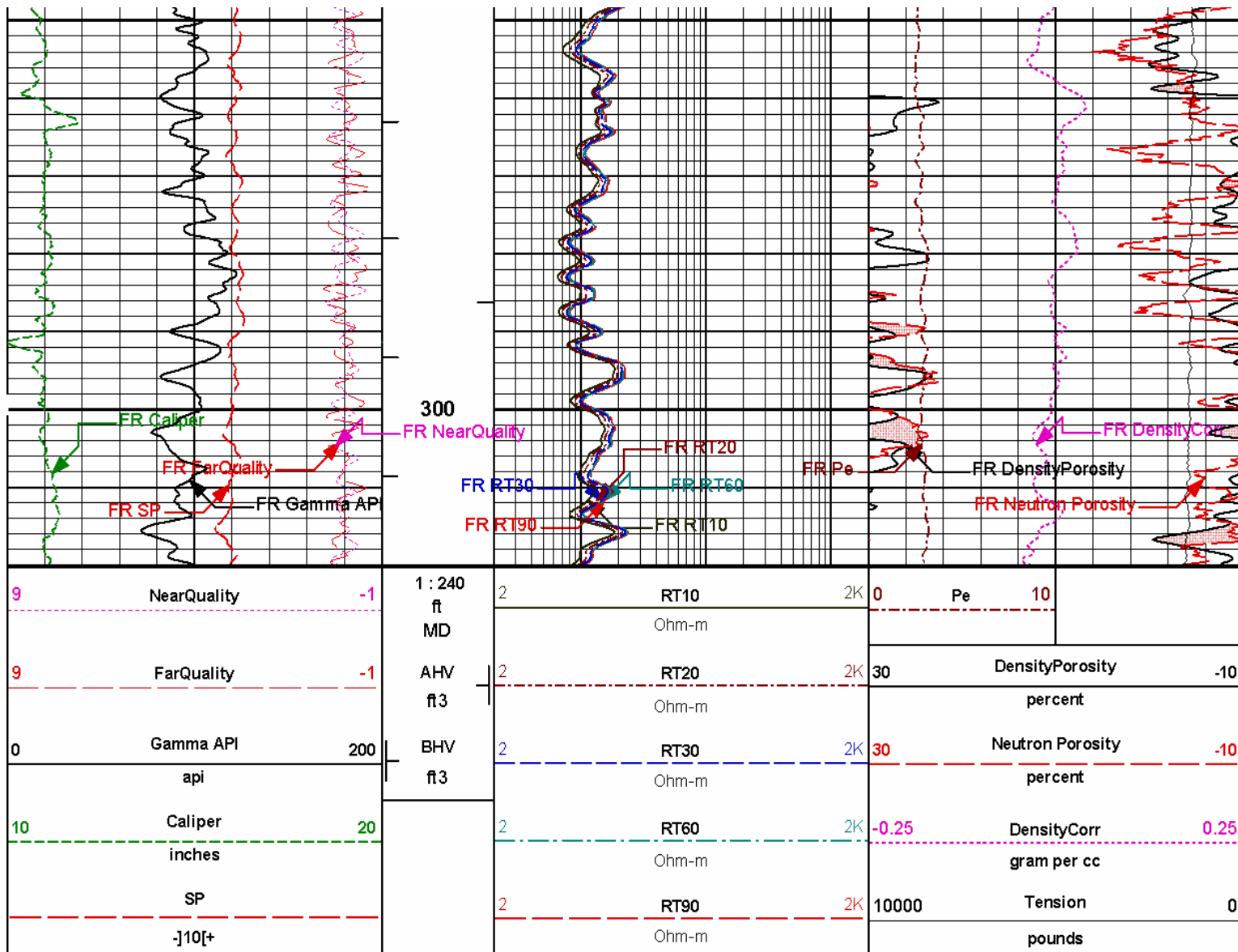
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Plot Time: 19-Oct-09 09:39:21
 Plot Range: 75 ft to 320 ft
 Data: NE_MCFED_35_33DIWell Based\DAQ-RPT\n
 Plot File: \\TRIPLEIA-Triple-IQ

REPEAT SECTION 5" = 100'

SP	2	RT90	2K	10000	Tension	0
-j10[+		Ohm-m			pounds	
10	Caliper	20	2	RT60	2K	-0.25
					DensityCorr	0.25





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Plot Time: 19-Oct-09 09:39:23
Plot Range: 75 ft to 320 ft
Data: NE_MCFED_35_33DIWell BasedDAQ-RPT1
Plot File: \\TRIPLEIA-Triple-IQ

REPEAT SECTION 5" = 100'

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CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11004661

Reference Calibration Date: 01-Aug-09 08:46:47

Engineer: M. HUNT

Calibration Date: 05-Oct-09 19:03:30

Software Version: WL INSITE R2.4 (Build 20)

Calibration Version: 1

Calibrator Source S/N: TB-110

Calibrator API Reference: 239.00 api

Measurement	Measured	Calibrated	Units
Background	53.9	56.6	api
Background + Calibrator	281.8	295.6	api
Calibrator	241.6	239.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11004661

Reference Calibration Date: 05-Oct-09 19:03:30

Engineer: K. WOOD

Calibration Date: 18-Oct-09 15:57:06

Software Version: WL INSITE R2.4 (Build 20)

Calibration Version: 1

Calibrator Source S/N: TB-110

Calibrator API Reference:239.00 api

Field Verification	Shop	Field	Units
Background	56.6	46.6	api
Background + Calibrator	295.6	291.3	api
Calibrator	239.0	244.7	api

Shop	Field	Difference	Tolerance
239.0	244.7	-5.7	+/- 9.00

NATURAL GAMMA RAY TOOL POST CALIBRATION

Tool Name: GTET - 11004661

Reference Calibration Date: 18-Oct-09 15:57:06

Engineer: K. WOOD

Calibration Date: 19-Oct-09 09:23:55

Software Version: WL INSITE R2.4 (Build 20)

Calibration Version: 1

Calibrator Source S/N: TB-110

Calibrator API Reference:239.00 api

Post Verification	Field	Post	Units
Background	46.6	54.6	api
Background + Calibrator	291.3	297.7	api
Calibrator	244.7	243.1	api

Shop	Field	Post	Difference	Tolerance
239.0	244.7	243.1	1.6	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10917119

Reference Calibration Date: 06-Oct-09 14:16:29

Engineer: K. WOOD

Calibration Date: 06-Oct-09 14:35:25

Software Version: WL INSITE R2.4 (Build 20)

Calibration Version: 1

Logging Source S/N: DSN-388

Tank Serial Number: GJ_WATER_TANK

Reference value assigned to Tank: 52.750

Snow Block S/N: SB-110

Calibration Tank Water Temperature: 74 degF

Min. Tool Housing Outside Diameter: 3.570 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.983	0.980	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decg):	0.2179	0.2169	0.0009	+/- 0.0020
Calibrated Ratio:	9.96	9.93	0.031	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decg):	0.0702	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	DSNT - 10917119	Reference Calibration Date:	06-Oct-09 14:35:25
Engineer:	K. WOOD	Calibration Date:	18-Oct-09 16:05:31
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

Logging Source S/N: DSN-388
Snow Block S/N: SB-110

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decg):	0.0702	0.0749	0.0046	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	DSNT - 10917119	Reference Calibration Date:	18-Oct-09 16:05:31
Engineer:	K. WOOD	Calibration Date:	19-Oct-09 09:31:29
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

Logging Source S/N: DSN-388
Snow Block S/N: SB-110

NEUTRON POST-CHECK SUMMARY				
	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decg):	0.0749	0.0764	0.0015	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	SDLT - 10951314	Reference Calibration Date:	05-Oct-09 18:55:26
Engineer:	M. HUNT	Calibration Date:	05-Oct-09 19:17:12
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

Logging Source S/N: 20785B

Aluminum Block S/N: 63094

Magnesium Block S/N: 63387

Density: 2.610g/cc

Density: 1.685g/cc

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0840	1.0578	0.90 - 1.10
Near Dens Gain	1.0353	1.0198	0.90 - 1.10
Near Peak Gain	1.0013	0.9877	0.90 - 1.10
Near Lith Gain	0.9437	0.9357	0.90 - 1.10
Far Bar Gain	1.0197	1.0160	0.90 - 1.10
Far Dens Gain	1.0059	1.0026	0.90 - 1.10
Far Peak Gain	0.9945	0.9931	0.90 - 1.10
Far Lith Gain	0.9708	0.9642	0.90 - 1.10
Near Bar Offset	-0.6802	-0.4345	NONE
Near Dens Offset	-0.2127	-0.0711	NONE
Near Peak Offset	0.1027	0.2219	NONE
Near Lith Offset	0.5602	0.6338	NONE
Far Bar Offset	-0.1853	-0.1496	NONE
Far Dens Offset	-0.0605	-0.0298	NONE
Far Peak Offset	0.0089	0.0214	NONE
Far Lith Offset	0.1552	0.2082	NONE
Near Bar Background	973.27	974.33	700 - 1450
Near Dens Background	319.37	318.05	230 - 480
Near Peak Background	137.50	137.81	100 - 210
Near Lith Background	170.40	170.27	125 - 260
Far Bar Background	588.35	592.32	450 - 900
Far Dens Background	228.30	229.90	175 - 345
Far Peak Background	91.02	91.34	70 - 140
Far Lith Background	93.54	94.64	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.684	1.685	0.001	+/- 0.015
Pe	2.631	2.594	-0.037	+/- 0.150
ALUMINUM				
Density (g/cc)	2.604	2.610	0.006	+/- 0.01500
Pe	3.115	3.100	-0.015	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0009	+/- 0.0110	0.0001	+/- 0.0140
Magnesium Block	0.0008	+/- 0.0110	-0.0012	+/- 0.0140
Aluminum Block	-0.0014	+/- 0.0110	0.0012	+/- 0.0140

Resolution	9.44	6.00 - 11.50	9.48	6.00 - 11.50
Internal Verifier(B+D+P+L)	1600	1200 - 2700	1008	800 - 1700

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	SDLT - 10951314	Reference Calibration Date:	05-Oct-09 19:17:12
Engineer:	K. WOOD	Calibration Date:	18-Oct-09 15:55:54
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

Aluminum Block S/N: 63094	Density: 2.610g/cc
Magnesium Block S/N: 63387	Density: 1.685g/cc
Pad Temperature: 61.1 degF	

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1600.450	1599.426	-1.024	16.087
Far (B+D+P+L) cps	1008.197	1009.840	1.643	16.974
Near Resolution	9.44	9.45	0.010	0.50
Far Resolution	9.48	9.51	0.030	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

SPECTRAL DENSITY POST CHECK

Tool Name:	SDLT - 10951314	Reference Calibration Date:	18-Oct-09 15:55:54
Engineer:	K. WOOD	Calibration Date:	19-Oct-09 09:24:30
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

Aluminum Block S/N: 63094	Density: 2.610g/cc
Magnesium Block S/N: 63387	Density: 1.685g/cc
Pad Temperature: 68.2 degF	

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1599.426	1598.801	-0.625	16.087
Far (B+D+P+L) cps	1009.840	1006.807	-3.033	16.974
Near Resolution	9.45	9.52	0.070	0.50
Far Resolution	9.51	9.76	0.250	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed

Bkg Resolution Check:
Bkg Verification Check:

Passed
Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10951314

Reference Calibration Date: 18-Oct-09 16:13:31

Engineer: K. WOOD

Calibration Date: 18-Oct-09 16:18:06

Software Version: WL INSITE R2.4 (Build 20)

Calibration Version: 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1593.50	-1650.51	-7000.00 - -1000.00
Pad Gain	0.0003707	0.0003730	0.000200 - 0.000600
Arm Offset	-33.62	-364.58	-5000.00 - 3000.00
Arm Gain	0.0004384	0.0004710	0.000300 - 0.000700
Arm Power	-0.000000662	-0.000002929	-0.000010 - 0.000010

The ring diameter is computed from: $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.01	2.00	-0.01	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.55	6.50	-0.05	+/- 0.20
Medium Ring (in)	8.22	8.25	0.03	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check: Passed
Ring-Measurement Check: Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check: Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 10951314

Reference Calibration Date: 18-Oct-09 16:18:06

Engineer: K. WOOD

Calibration Date: 18-Oct-09 16:30:07

Software Version: WL INSITE R2.4 (Build 20)

Calibration Version: 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.73	-0.02	+/- 0.10
Ring Diameter	8.25	8.28	0.03	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check: Passed
Diameter Check: Passed

SDLT CALIPER POST CALIBRATION

Tool Name: SDLT - 10951314

Reference Calibration Date: 18-Oct-09 16:30:07

Engineer: K. WOOD

Calibration Date: 19-Oct-09 09:27:48

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11004661						
Gamma Ray Calibrator	239.0	244.7	243.1	1.6	+/- 9.00	api
DSNT-10917119						
Snow-Block Porosity	0.0702	0.0749	0.0764	-0.0015	+/- 0.0150	decg
SDT-10054214						

Near(B+D+P+L)	1600.450	1599.426	1598.801	0.625	+/-16.087	cps
Far(B+D+P+L)	1008.197	1009.840	1006.807	3.033	+/-16.974	cps
Pad Extension	3.75	3.73	3.81	-0.08	+/-0.10	in
Ring Diameter	8.25	8.28	8.17	0.110	+/-0.15	in
ACRT-90194258-E7486-						
Mud Cell	1.004	-----	-----	0.000	-----	ohmm
Data: NE_MCFED_35_33D\0001 TRIPLE_IQ_STRING_1\IDLE						
Date: 19-Oct-09 09:34:02						


HALLIBURTON

CUSTOMER EVENT LOG

Event Type	Time & Date	Depth (ft)	Event Description
	19-Oct-09 07:14:30	37.50	Logging 001 19-Oct-09 07:14 Dn @37.5f
	19-Oct-09 07:14:35	100.20	Halting 001 19-Oct-09 07:14 Dn @37.5f
	19-Oct-09 07:15:55	66.50	Logging 002 19-Oct-09 07:15 Dn @66.5f
	19-Oct-09 07:17:49	427.25	Halting 002 19-Oct-09 07:15 Dn @66.5f
	19-Oct-09 07:17:55	427.75	Logging 003 19-Oct-09 07:17 Up @427.8f
	19-Oct-09 07:19:09	408.89	Halting 003 19-Oct-09 07:17 Up @427.8f
	19-Oct-09 07:19:37	392.25	Logging 004 19-Oct-09 07:19 Up @392.3f
	19-Oct-09 07:25:49	70.48	Halting 004 19-Oct-09 07:19 Up @392.3f
	19-Oct-09 07:28:32	344.25	Logging 005 19-Oct-09 07:28 Dn @344.3f
	19-Oct-09 07:33:55	1530.05	Halting 005 19-Oct-09 07:28 Dn @344.3f
	19-Oct-09 07:34:22	1532.50	Logging 006 19-Oct-09 07:34 Up @1532.5f
	19-Oct-09 08:01:29	39.45	Halting 006 19-Oct-09 07:34 Up @1532.5f
	19-Oct-09 08:05:12	408.50	Logging 007 19-Oct-09 08:05 Up @408.5f
	19-Oct-09 08:11:52	72.06	Halting 007 19-Oct-09 08:05 Up @408.5f
	19-Oct-09 08:19:36	1536.50	Logging 008 19-Oct-09 08:19 Up @1536.5f
	19-Oct-09 08:48:20	36.01	Halting 008 19-Oct-09 08:19 Up @1536.5f
Data: NE_MCFED_35_33D\0001 TRIPLE_IQ_STRING_1\HW11047			
Date: 19-Oct-09 09:05:12			

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-C11013846 135.00 lbs	Ø 3.625 in		Load Cell @ 54.80 ft BH Temperature @ 54.23 ft	6.25 ft	58.48 ft
GTET-11004661 165.00 lbs	Ø 3.625 in		GammaRay @ 46.17 ft	8.52 ft	52.23 ft

DSNT-10917119
174.00 lbs

Ø 3.625 in →

← DSN Far @ 36.77 ft
← DSN Near @ 36.02 ft

9.69 ft

43.71 ft

SDLT-10951314
360.00 lbs

Ø 4.500 in →

Ø 4.750 in →

← SDL Microlog @ 26.21 ft
← SDL Caliper @ 26.03 ft
← SDL @ 26.02 ft

10.81 ft

34.02 ft

23.21 ft

ACRt-90194258-E7486-
250.00 lbs

Ø 3.625 in →

← Mud Resistivity @ 16.82 ft

← ACRt @ 12.84 ft

19.25 ft

← SP @ 5.24 ft

THERMOSUB-GJ01
15.00 lbs

Ø 3.625 in →

0.96 ft

3.96 ft

CENT-GJ01
35.00 lbs

Ø 3.625 in →

3.00 ft

3.00 ft

0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	C11013846	135.00	6.25	52.23	300.00
GTET	Natural Gamma Ray Tool	11004661	165.00	8.52	43.71	60.00
DSNT	Dual Spaced Neutron	10917119	174.00	9.69	34.02	60.00
DCNT	DSN Decentralizer	10993887	50.00	5.13	*	37.35

SDLT	Spectral Density Tool	10951314	360.00	10.81	23.21	60.00
ACRt	Array Compensated True Resistivity	90194258-E7486-	250.00	19.25	3.96	300.00
SP	SP Ring	PROTO1	0.00	0.25 *	5.24	300.00
HFCS	Hostile Full Wave Sonic Caged Metal and Rubber Standoff	01	7.94	1.33 *	16.83	300.00
THERMO	THERMOSUB	GJ01	15.00	0.96	3.00	100.00
HFCS	Hostile Full Wave Sonic Caged Metal and Rubber Standoff	02	7.94	1.33 *	3.02	300.00
CENT	Bottom Centralizer	GJ01	35.00	3.00	0.00	300.00
Total			1,199.88	58.48		
* Not included in Total Length and Length Accumulation.						
Data: NE_MCFED_35_33D\0001 TRIPLE_IQ_STRING_1\006 19-Oct-09 07:34 Up @1532.5f						
Date: 19-Oct-09 07:47:44						

COMPANY	NOBLE ENERGY		
WELL	MCNEIL FEDERAL 35-33D		
FIELD	RULISON		
COUNTY	GARFIELD	STATE	CO
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY	