

HALLIBURTON

COMPENSATED SPECTRAL NATURAL GAMMA

CONOCO PHILLIPS COMPANY
MORAN TRUST 2-1
WILDCAT
ARAPAHOE
CO

COMPANY CONOCO PHILLIPS COMPANY
WELL MORAN TRUST 2-1
FIELD/BLOCK WILDCAT
COUNTY ARAPAHOE
STATE CO

COMPANY CONOCO PHILLIPS COMPANY
WELL MORAN TRUST 2-1
FIELD/BLOCK WILDCAT
COUNTY ARAPAHOE
STATE CO

API No. 05005072070000
Location SHL: 1680' FSL & 1853' FEL NWSE
LATTITUDE: 39.641706°
LONGITUDE: -104.516628°
Other Services:
DSNT
SDLT
IDT/ICT
WSTT
ACRT

Permanent Datum Log measured from KB
Drilling measured from KB
Date 08-Aug-13
Run No. ONE
Depth - Driller 8030.00 ft
Depth - Logger 8030.0 ft
Bottom - Logged Interval 7926 ft
Top - Logged Interval 7000 ft
Casing - Driller 9.625 in @ 2269.0 ft
Casing - Logger 2268.0 ft
Bit Size 8.750 in @
Type Fluid in Hole OIL BASED MUD
Density 9.2 ppg 49.00 s/qt
Alkalinity P. Viscosity 13.0 cP
HTHP @ Meas. Temperature 5.4 cpm @ 250.00 degF
Solids Wgt. Material 5.4 % BAROID 41
Oil Water Ratio 63 37
Water Phase Salinity 75000.00 ppm Cl-
Oil Type Brine Type DIESEL
Electrical Stability Brine Type CACL2
Time Since Circulation 23.0 hr
Time on Bottom 08-Aug-13 18:09
Max. Rec. Temperature 215.0 degF @ 8030.0 ft
Equipment Location 11454566 BRIGHTON
Recorded By J. PINKETT
Witnessed By R. PEREZ

Elev.: 5975.0 ft
Elev.: K.B. 5999.0 ft
D.F. 5998.0 ft
G.L. 5975.0 ft
Sect. 2 Twp. 5S Rge. 64W
24.0 ft above perm. Datum

Fold here

Service Ticket No.:		API Serial No.: 05005072070000		PGM Version: WL INSITE R3.8.4 (Build 5)				
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	F. Viscosity							
Alkalinity	P. Viscosity							
HTHP @ Meas. Temp. @				RESISTIVITY EQUIPMENT DATA				
Solids	Wgt. Mat.			Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Oil	Water Ratio			ONE	ACRT	N/A	CENT	N/A
Water Phase Salinity					11302817			
Oil Type	Water Type				11294353			
Electrical Stability								

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11812883	Serial No.	90296673	Serial No.	11795867	Serial No.	11812187
Model No.	GTET	Model No.	WSTT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing	0.5'	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs 137	Source Type	Am241Be
Length	8"	LSA [Y/N]	Y	Serial No.	5471GW	Serial No.	DSN-434
Distance to Source	20'	FWDA [Y/N]	Y	Strength	1.78 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	140	40	47.6	1.95	2.95	2.71	.45	-.15	LIME
ONE	CSG	200	REC	0	200									

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@
-------------------	---	-----	---

Remarks: RWCH/GTET/CSNG/DSNT/SDLT/IDT/ICT/WSTT/ACRT RAN IN COMBINATION
 ANNULAR HOLE VOLUME CALCULATED FOR 4.5-INCH CASING
 TENSION PULLS, WASHOUTS, AND BOREHOLE RUGOSITY CAN AFFECT TOOL RESPONSE
 BHT AVERAGED FROM 4 MAX TEMPERATURE THERMOMETERS

YOUR CREW: A. AXE, B. RIEDEL, K. PREIST RIG: H&P 280
 THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - BRIGHTON, CO - (303) 825-4346

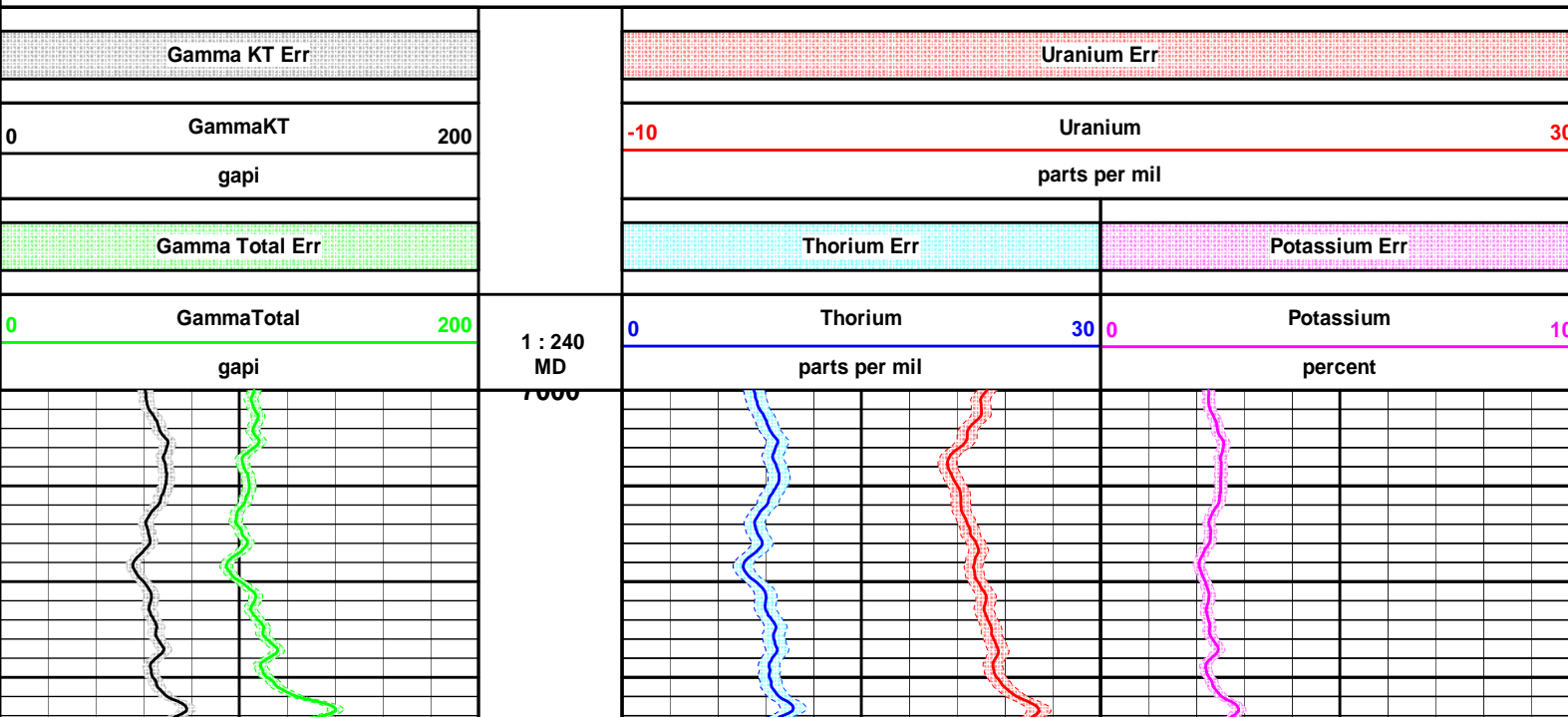
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR 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.

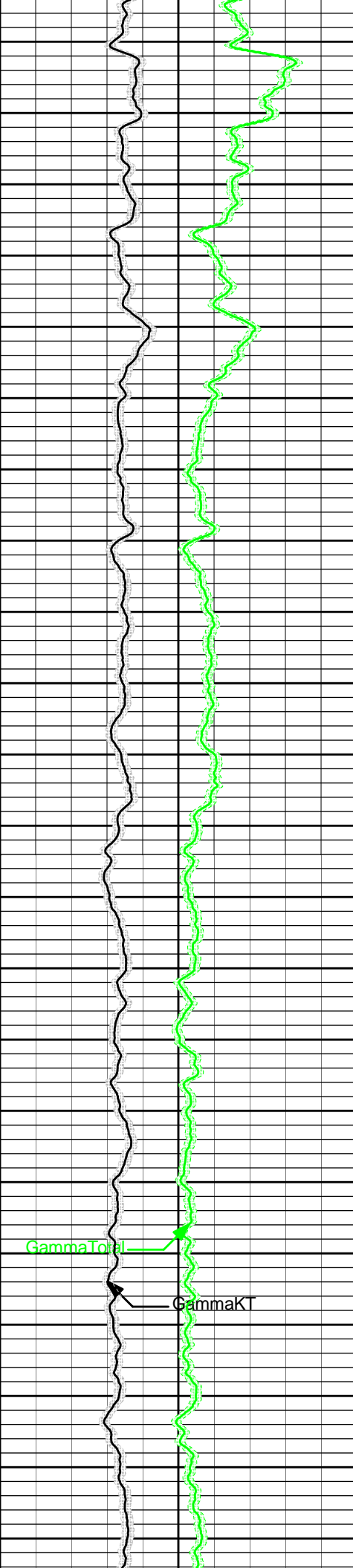
HALLIBURTON



Plot Time: 09-Aug-13 05:53:41
 Plot Range: 7000 ft to 7938.5 ft
 Data: {ActiveWell}\Well Based\CSNG-DSNT-SDLT\
 Plot File: \\CSNG\CSNG-FS - Primary 1_240

MAIN PASS 5" = 100'





7050

7100

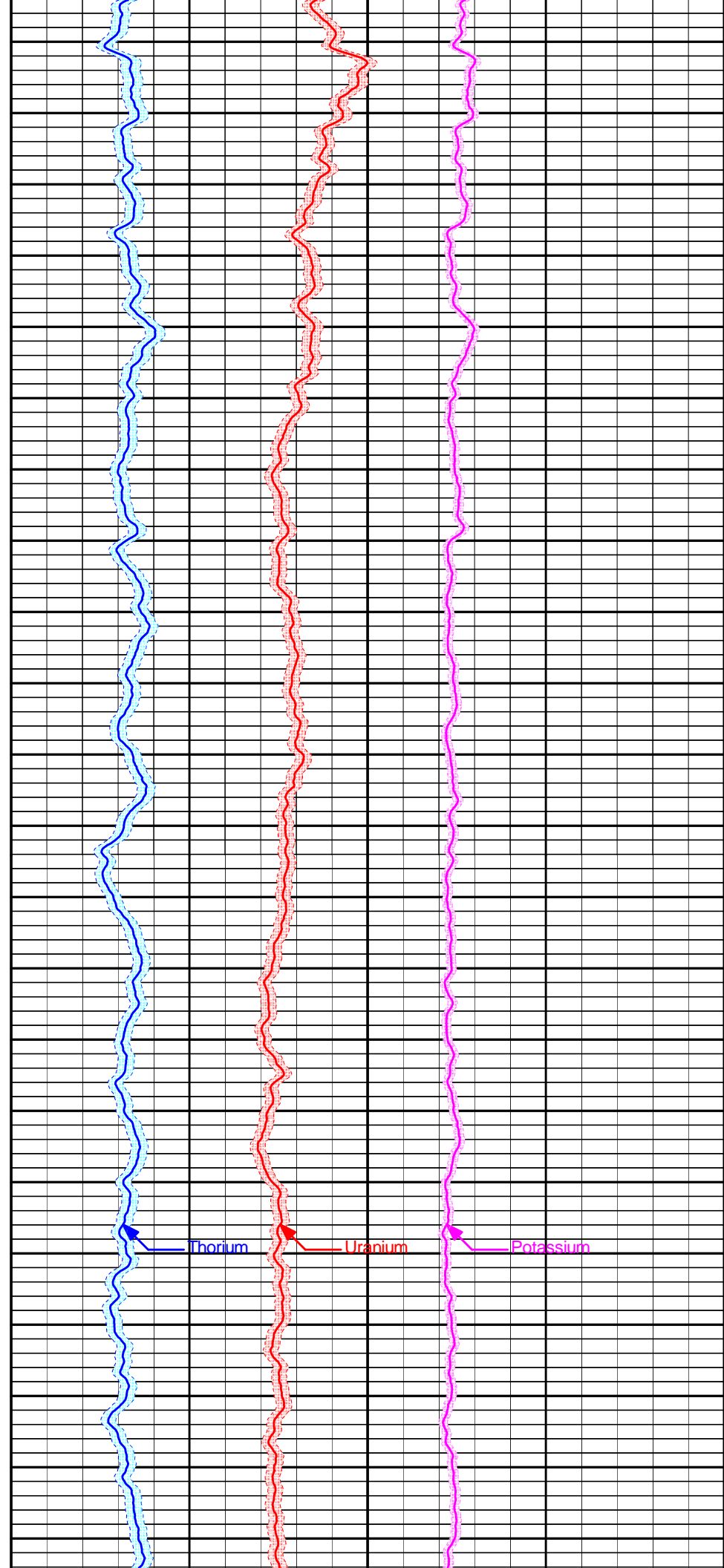
7150

7200

7250

Gamma Total

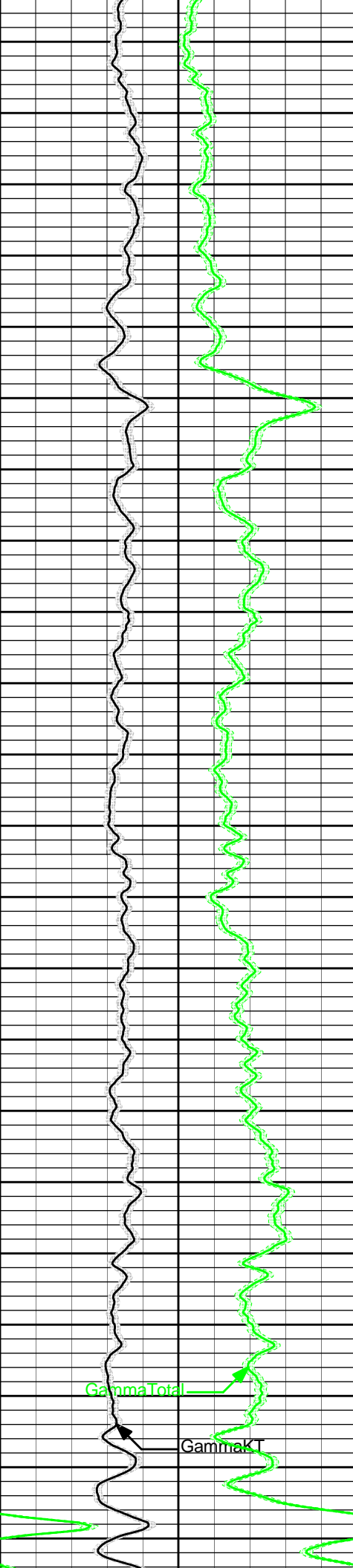
Gamma K T



Thorium

Uranium

Potassium

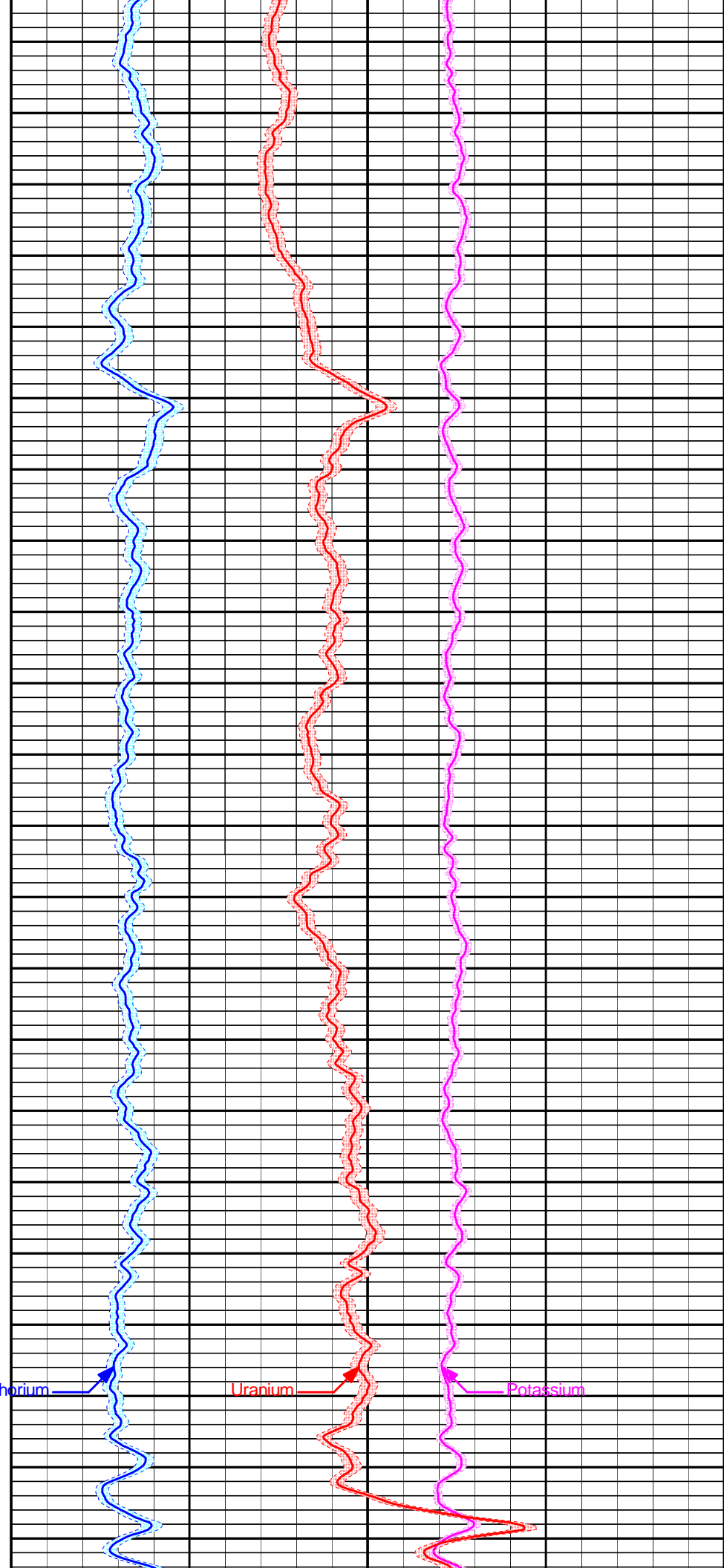


7300

7350

7400

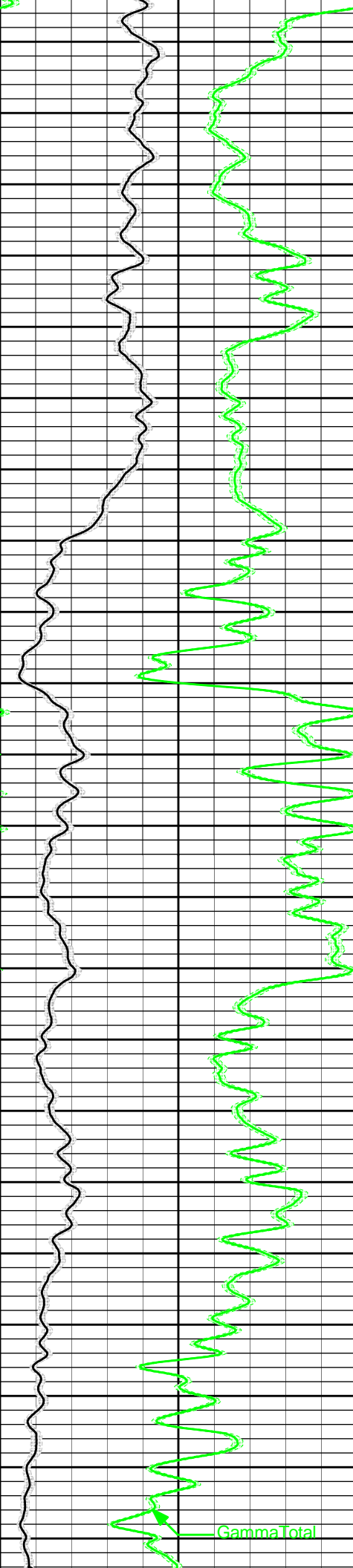
7450



Thorium

Uranium

Potassium



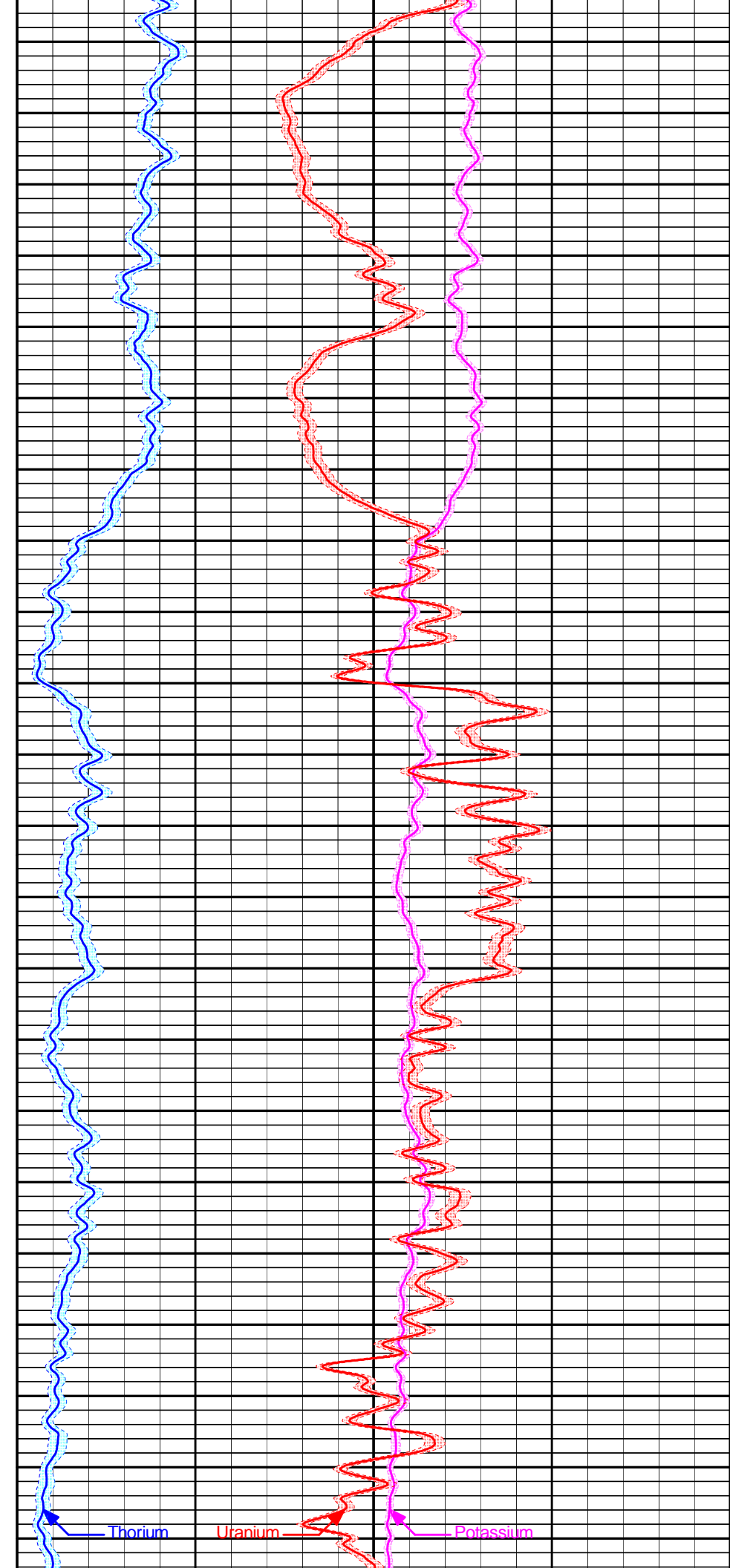
7500

7550

7600

7650

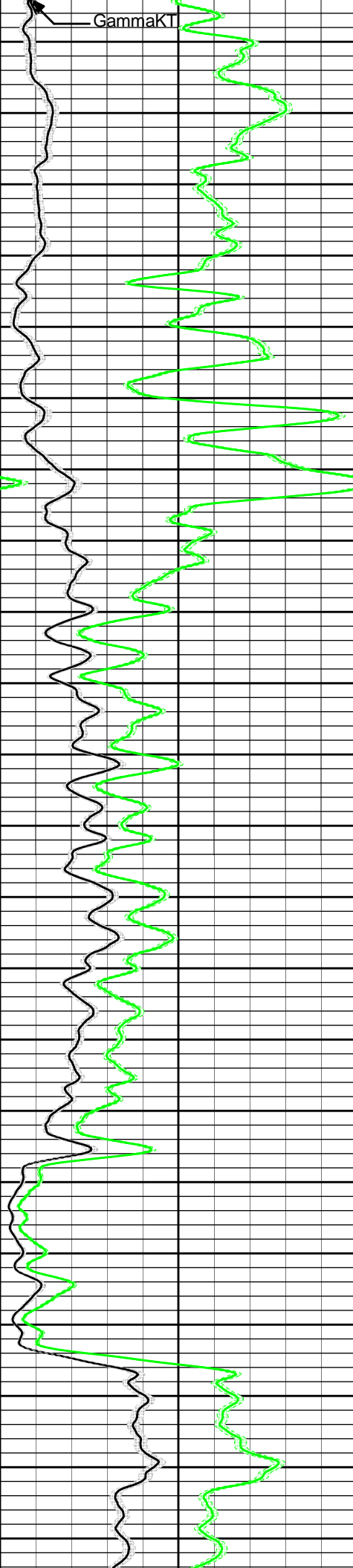
Gamma Total



Thorium

Uranium

Potassium



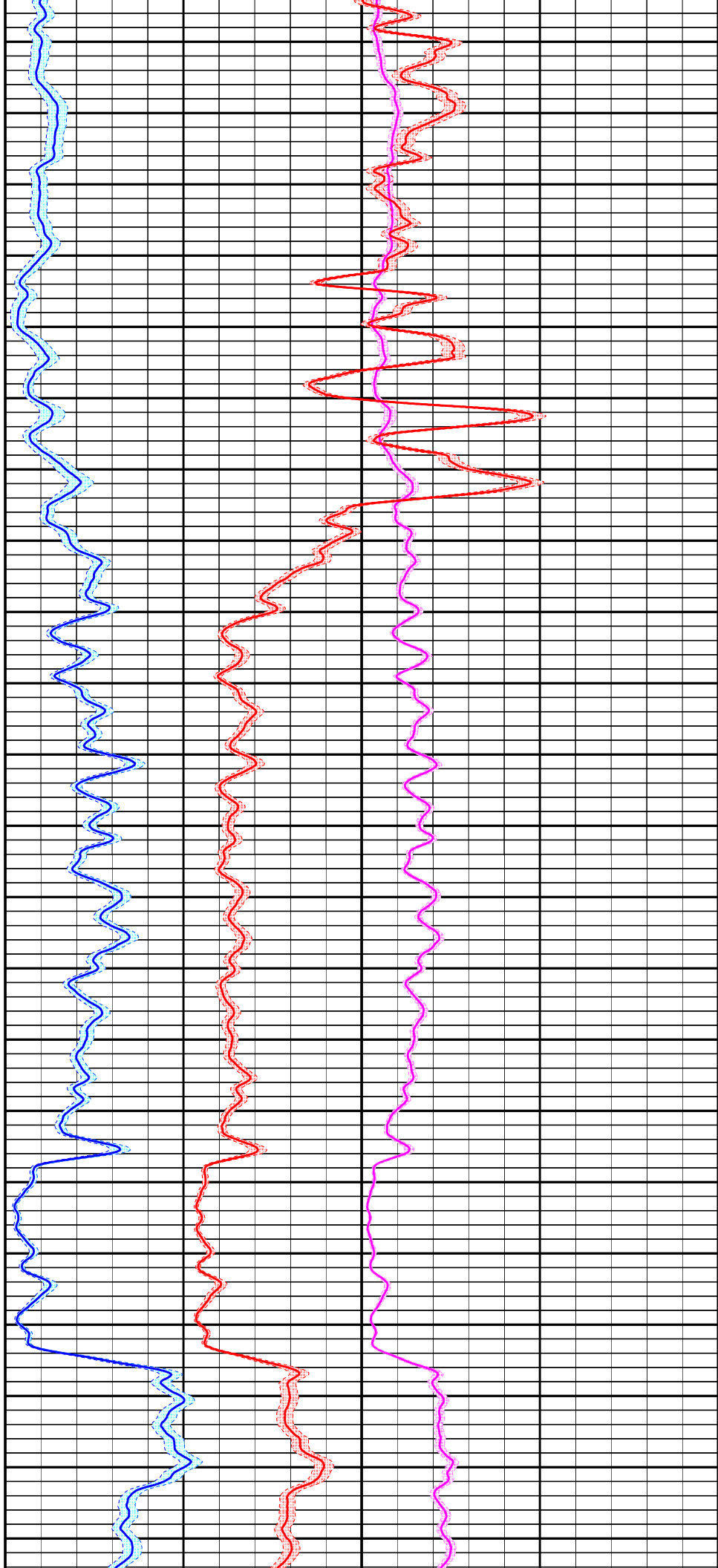
7700

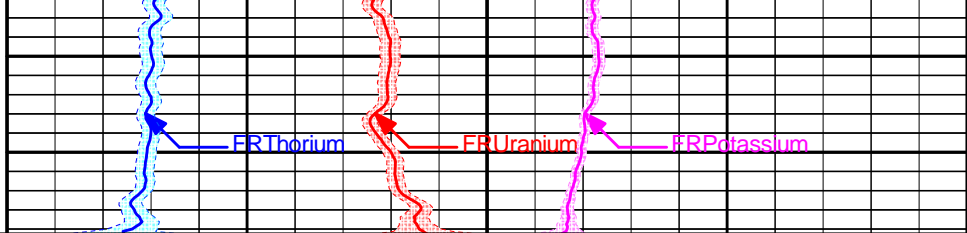
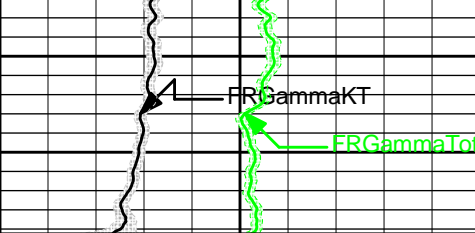
7750

7800

7850

7900





0	GammaTotal	200
gapi		
Gamma Total Err		
0	GammaKT	200
gapi		
Gamma KT Err		

1 : 240
MD

0	Thorium	30
parts per mil		
Thorium Err		
-10	Uranium	30
parts per mil		
Uranium Err		

0	Potassium	10
percent		
Potassium Err		

HALLIBURTON Plot Time: 09-Aug-13 05:53:42
 Plot Range: 7000 ft to 7938.5 ft
 Data: {ActiveWell}\Well Based\CSNG-DSNT-SDLT\
 Plot File: \\CSNG\CSNG-FS - Primary 1_240

MAIN PASS 5" = 100'

HALLIBURTON Plot Time: 09-Aug-13 05:53:43
 Plot Range: 7000 ft to 7938.5 ft
 Data: {ActiveWell}\Well Based\CSNG-DSNT-SDLT\
 Plot File: \\CSNG\CSNG-FS - Quality 1_240

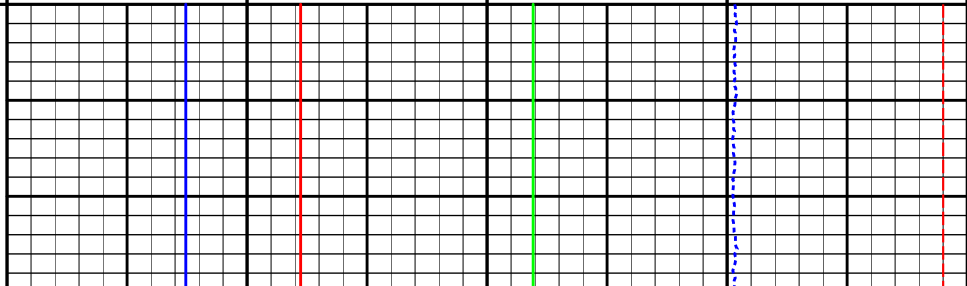
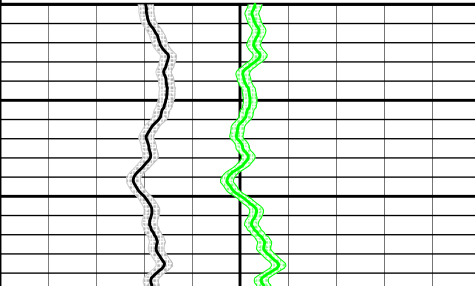
MAIN PASS 5" = 100'

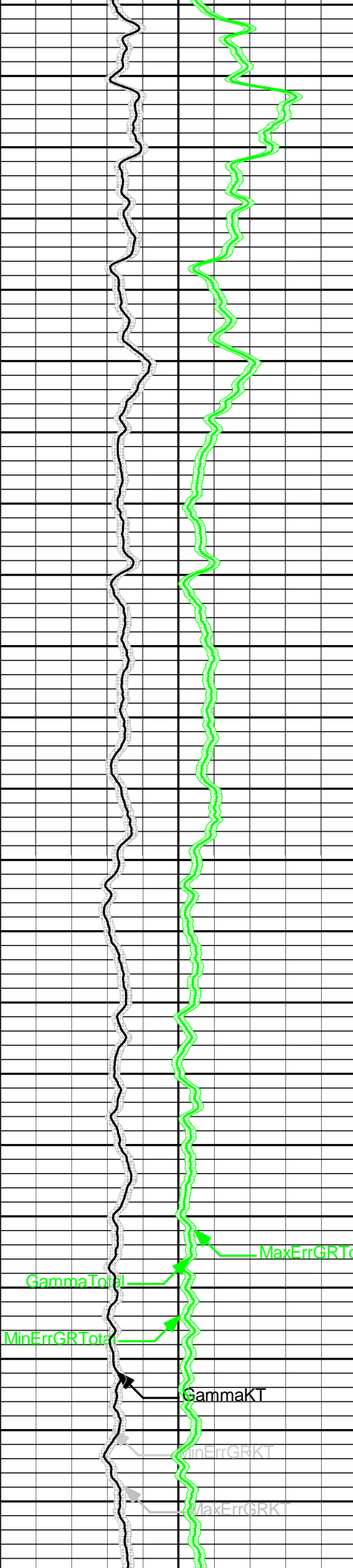
Gamma KT Err	
Gamma Total Err	
0	GammaTotal 200
gapi	
0	GammaKT 200
gapi	

1 : 240
MD

-10	Spectrum Offset	10
0.9	Spectrum Gain	1.1
0	Resol Degrade	20

0	Barite Fact Avg	1
0	Fitting Error	2





7050

7100

7150

7200

7250

Gamma Total

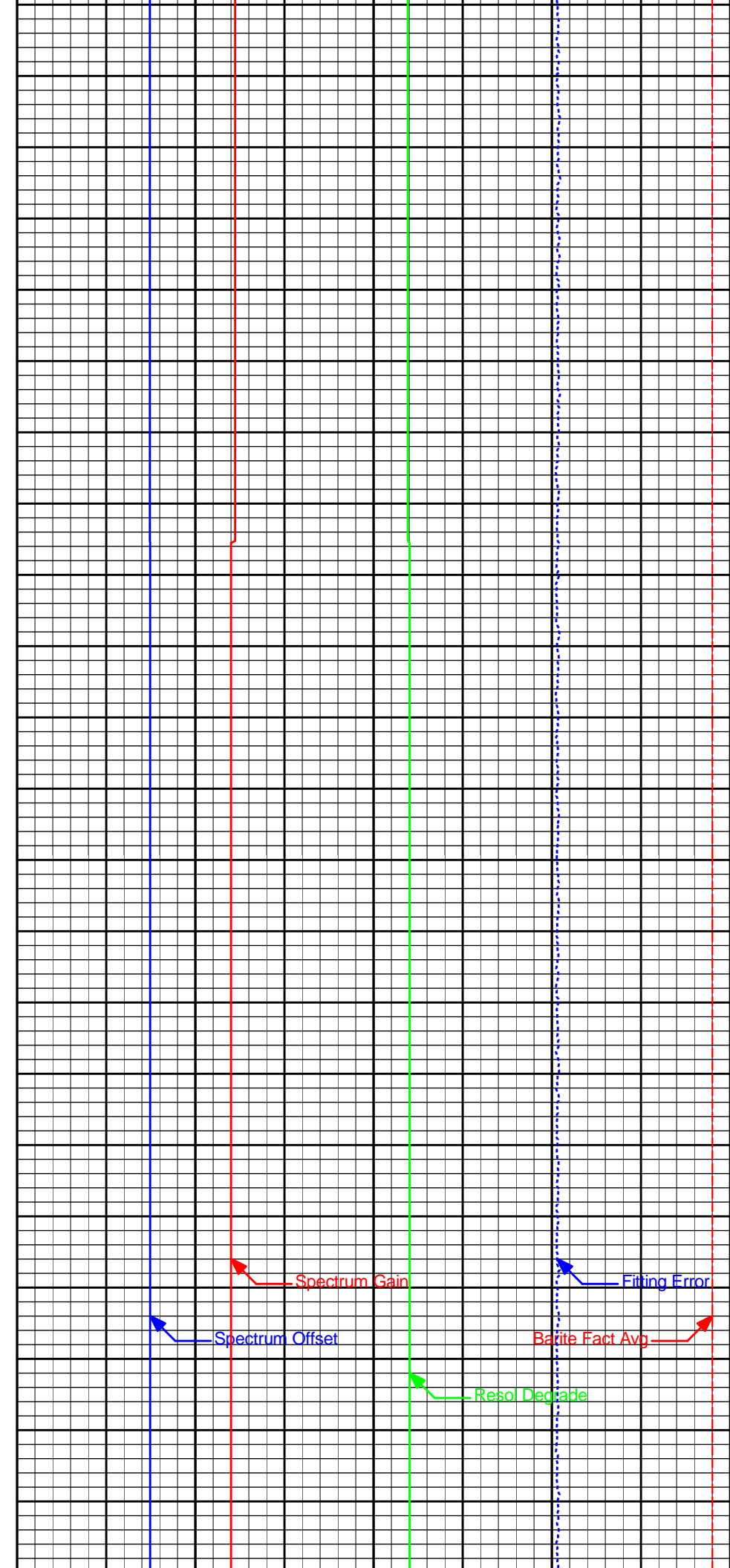
MinErrGRTotal

GammaKT

MinErrGRKT

MaxErrGRKT

MaxErrGRTotal



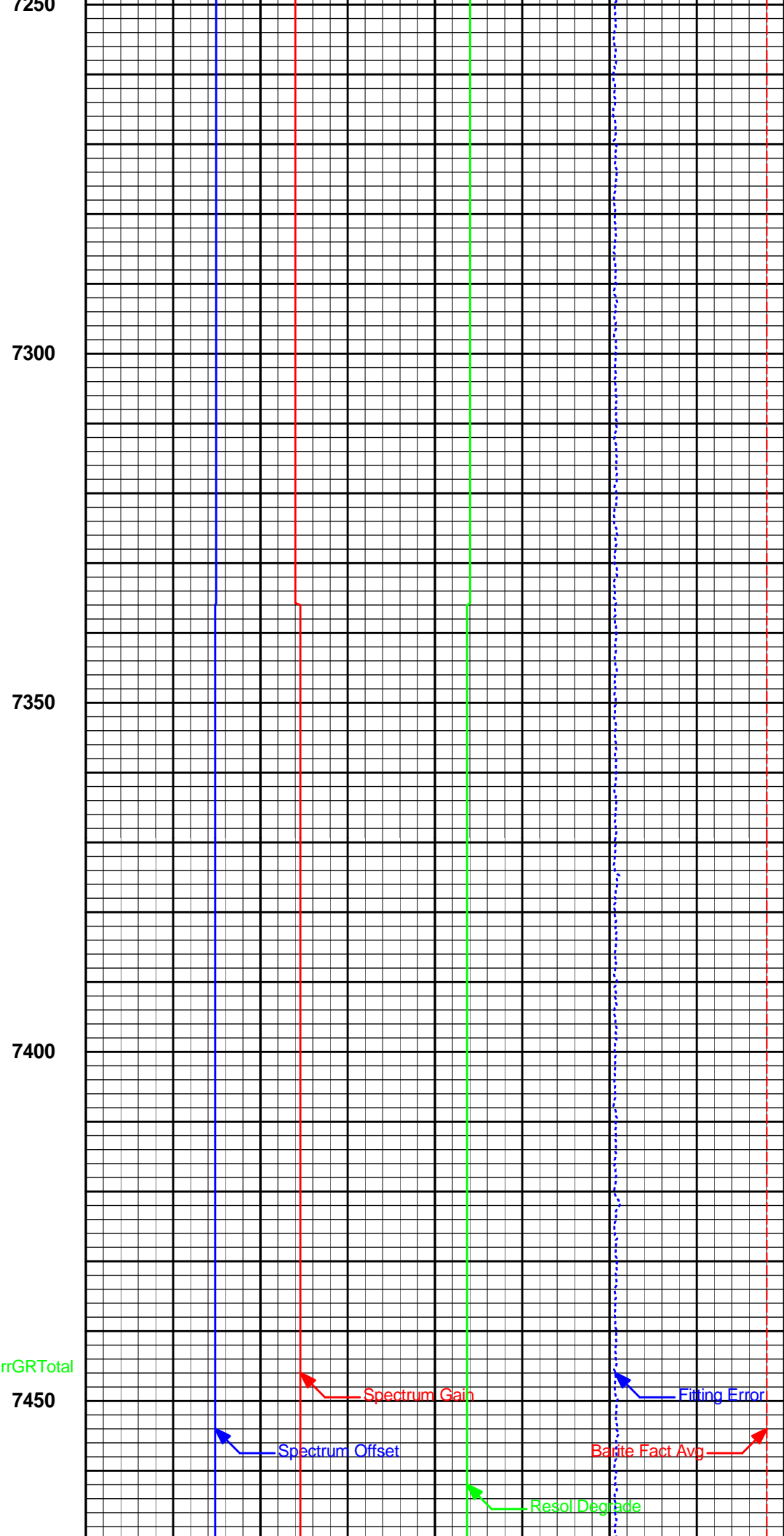
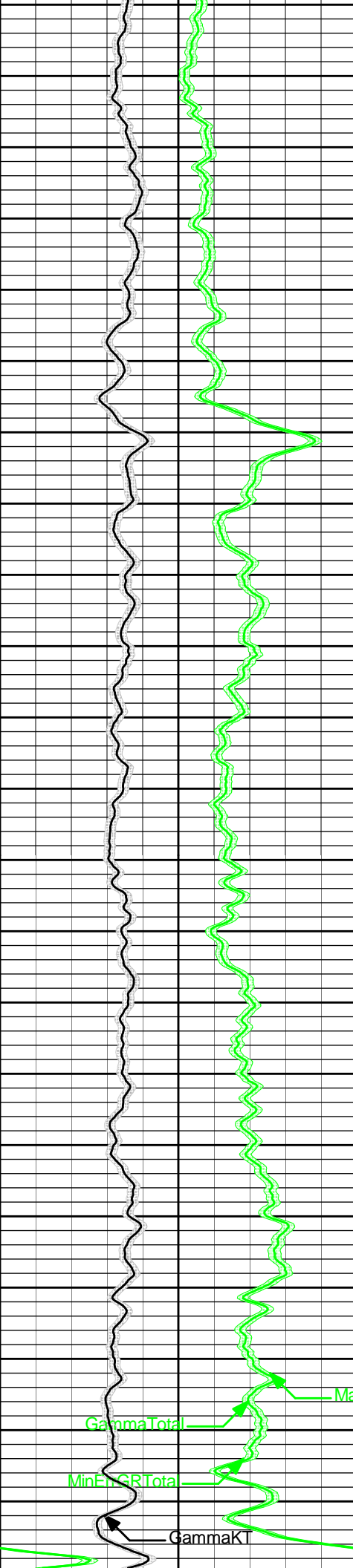
Spectrum Offset

Spectrum Gain

Resol Degradation

Fitting Error

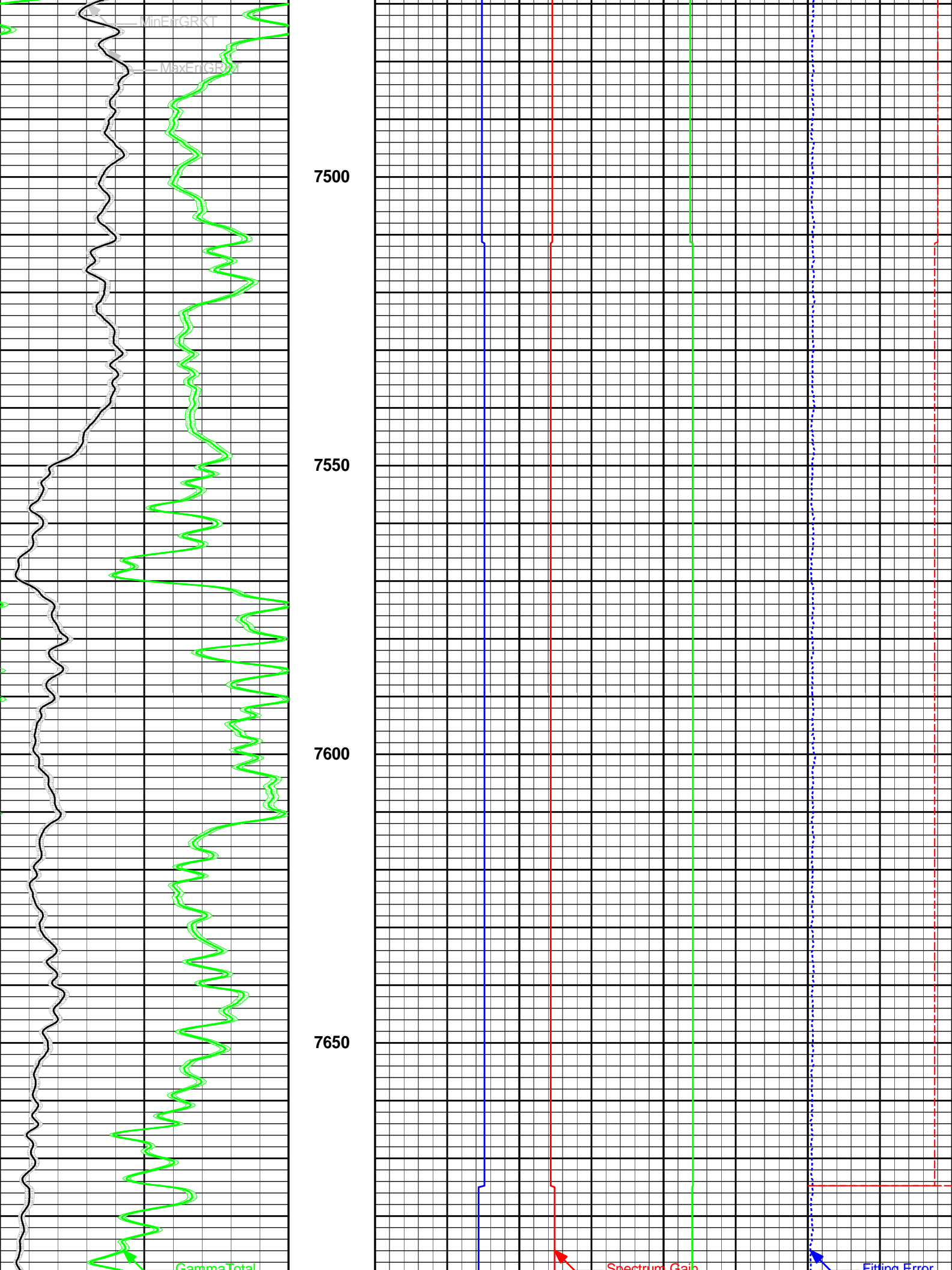
Barite Fact Avg

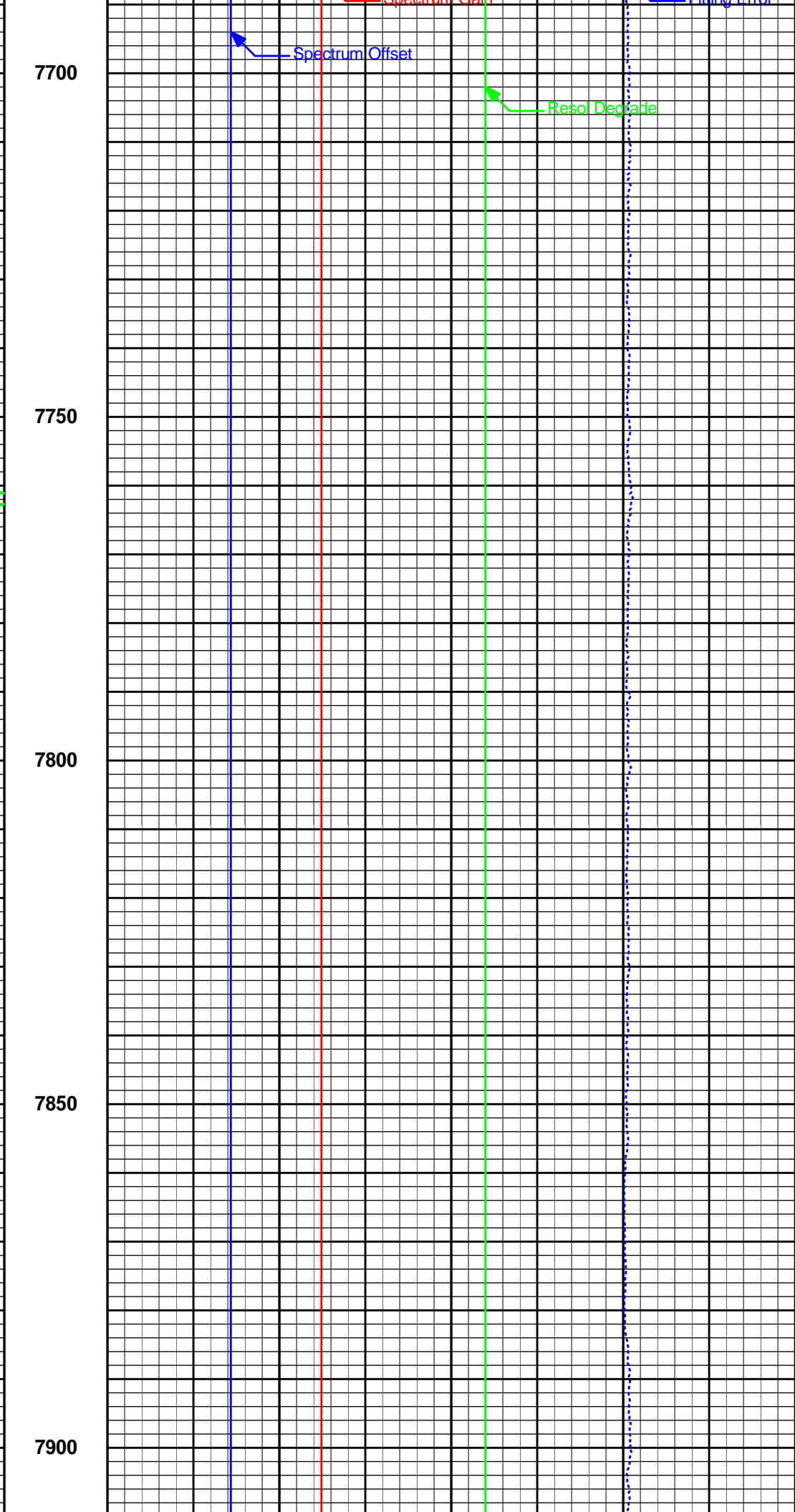
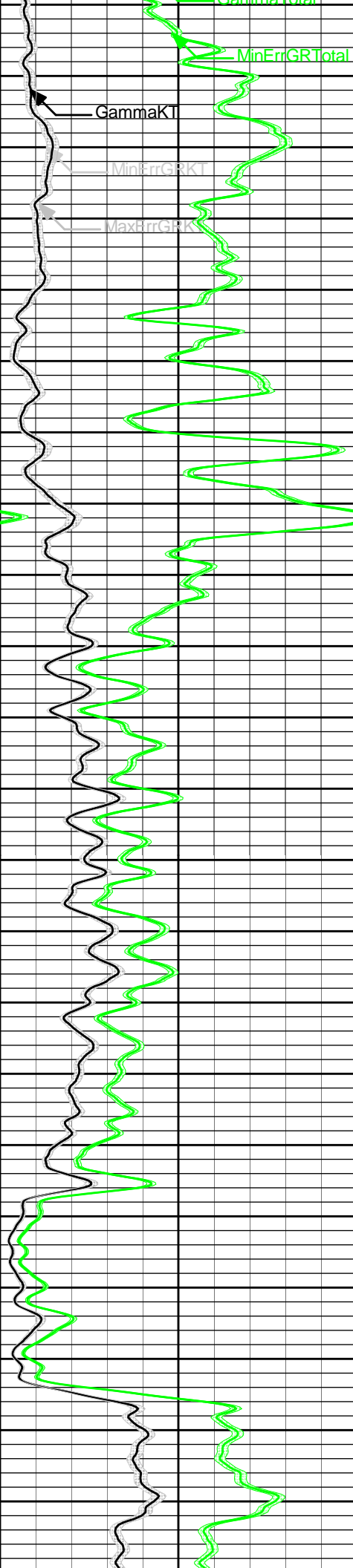


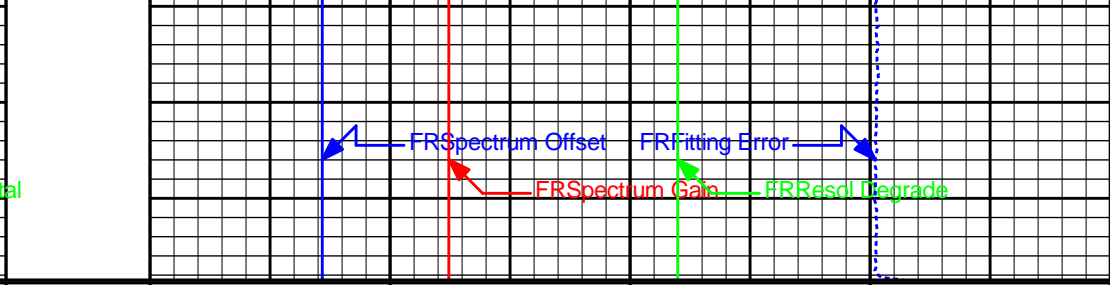
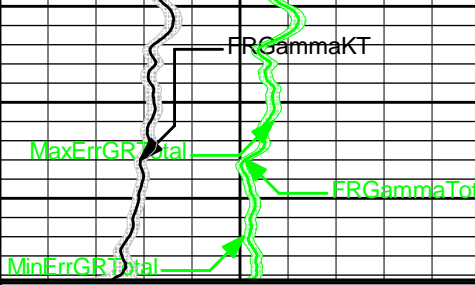
7250
7300
7350
7400
7450

Gamma Total
MinErrGRTotal
GammaKT
MaxErrGRTotal

Spectrum Gain
Spectrum Offset
Fitting Error
Barite Fact Avg
Resol Degrad







0	GammaKT	200	1 : 240 MD	Spectrum Offset	-10	10	Spectrum Gain	0.9	1.1	0	Resol Degrade	20	0	Fitting Error	2
0	GammaTotal	200		Barite Fact Avg	0	1									
gapi															
Gamma Total Err															
Gamma KT Err															



Plot Time: 09-Aug-13 05:53:44
 Plot Range: 7000 ft to 7938.5 ft
 Data: {ActiveWell}\Well Based\CSNG-DSNT-SDLT\
 Plot File: \CSNG\CSNG-FS - Quality 1_240

MAIN PASS 5" = 100'



CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11812883	Reference Calibration Date: 03-Jul-13 12:28:58
Engineer: J. SCHMIDT	Calibration Date: 02-Aug-13 11:52:38
Software Version: WL INSITE R3.8.4 (Build 5)	Calibration Version: 1

Calibrator Source S/N: TB-289
 Calibrator API Reference: 243.00 api
 Equivalent Calibrator API Reference: 247.3 api

Measurement	Measured	Calibrated	Units
Background	72.7	73.0	api
Background + Calibrator	319.0	320.3	api
Calibrator	246.3	247.3	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11812883	Reference Calibration Date: 02-Aug-13 11:52:38
Engineer: J. PINKETT	Calibration Date: 08-Aug-13 05:32:10
Software Version: WL INSITE R3.8.4 (Build 5)	Calibration Version: 1

Calibrator Source S/N: TB-289
 Calibrator API Reference: 243.00 api
 Equivalent Calibrator API Reference: 247.3 api

Field Verification	Shop	Field	Units
Background	73.0	71.5	api

Background + Calibrator	320.3	319.2	api
Calibrator	247.3	247.7	api

Shop	Field	Difference	Tolerance
247.3	247.7	-0.4	+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name: CSNG - 10846351 **Reference Calibration Date:** 03-Jul-13 13:45:32
Engineer: J. PINKETT **Calibration Date:** 07-Aug-13 11:10:32
Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1
Source SN: TB-289

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.8	23.7	Channel #
583 KEV Peak Channel #	53.6	53.2	Channel #
2614 KEV Peak Channel #	220.5	219.5	Channel #
Calibrate Temperature	81.8	74.8	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 243.00 API
 Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1795.3	CPS	342.0	336.9	API
Background	324.8	CPS	66.0	61.0	API

Gamma Ray Gain: 0.94
 Expected Gain Range: 0.85 - 1.15
 Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name: CSNG - 10846351 **Reference Calibration Date:** 07-Aug-13 11:10:32
Engineer: J. PINKETT **Calibration Date:** 08-Aug-13 05:38:34
Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1
Source SN:

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.7	23.7	Channel #
583 KEV Peak Channel #	53.2	53.3	Channel #
2614 KEV Peak Channel #	219.5	219.7	Channel #
Calibrate Temperature	74.8	74.8	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed

Blanket Reference Value: 243.00 API

Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1778.9	CPS	336.9	337.3	API
Background	323.4	CPS	61.0	61.3	API

Gamma Ray Gain: 0.95

Expected Gain Range: 0.85 - 1.15

Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11812167

Reference Calibration Date: 03-Jul-13 13:14:28

Engineer: J. SCHMIDT

Calibration Date: 02-Aug-13 13:50:04

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Logging Source S/N: DSN 434

Tank Serial Number: 11068236

Reference value assigned to Tank: 53.720

Snow Block S/N: BRIGHTON SNOW BLOCK

Calibration Tank Water Temperature: 70 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.001	1.004	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2214	0.2224	0.0010	+/- 0.0020
Calibrated Ratio:	10.08	10.11	0.033	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0769	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 - 11812167

Reference Calibration Date: 02-Aug-13 13:50:04

Engineer: J. PINKETT

Calibration Date: 08-Aug-13 05:43:59

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Logging Source S/N: DSN 434

Snow Block S/N: BRIGHTON SNOW BLOCK

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
--	------	-------	------------	-------------------------

Snow-Block Porosity (decp): 0.0769 0.0656 -0.0113 +/- 0.0150

PASS/FAIL SUMMARY

Block Change Check: Passed
 Snow Block Stat Check: Passed
 Temperature Check: Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 11812177 Reference Calibration Date: 03-Jul-13 14:28:03
 Engineer: J. SCHMIDT Calibration Date: 02-Aug-13 16:04:03
 Software Version: WL INSITE R3.8.4 (Build 5) Calibration Version: 1
 Host Tool Name: DSNT - 11812167

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3660.76	-3977.73	-7000.00 - -1000.00
Pad Gain	0.0003813	0.0003862	0.000200 - 0.000600
Arm Offset	-4402.43	-4271.55	-5000.00 - 3000.00
Arm Gain	0.0005632	0.0005525	0.000300 - 0.000700
Arm Power	-0.000004890	-0.000004524	-0.000010000 - 0.000010000

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + 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)	2.10	2.00	-0.10	+/- 0.20
Medium Ring (in)	3.82	3.75	-0.07	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.59	6.50	-0.09	+/- 0.20
Medium Ring (in)	8.37	8.25	-0.12	+/- 0.20
Large Ring (in)	15.17	15.00	-0.17	+/- 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 - 11812177 Reference Calibration Date: 02-Aug-13 16:04:03
 Engineer: J. PINKETT Calibration Date: 08-Aug-13 05:37:09
 Software Version: WL INSITE R3.8.4 (Build 5) Calibration Version: 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	0.00	+/- 0.10
Ring Diameter	8.25	8.23	-0.02	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check: Passed
 Diameter Check: Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 11795867

Reference Calibration Date: 03-Jul-13 14:06:34

Engineer: J. SCHMIDT

Calibration Date: 02-Aug-13 15:24:51

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Logging Source S/N: 5471GW

Aluminum Block S/N: 63066

Density: 2.602g/cc

Pe: 3.100

Magnesium Block S/N: BRIGHTON MAGNESIUM BLOCK

Density: 1.691g/cc

Pe: 2.650

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0851	1.0593	0.90 - 1.10
Near Dens Gain	1.0470	1.0258	0.90 - 1.10
Near Peak Gain	1.0318	1.0305	0.90 - 1.10
Near Lith Gain	0.9908	0.9864	0.90 - 1.10
Far Bar Gain	1.0153	1.0090	0.90 - 1.10
Far Dens Gain	1.0018	0.9961	0.90 - 1.10
Far Peak Gain	0.9946	0.9898	0.90 - 1.10
Far Lith Gain	0.9822	0.9721	0.90 - 1.10
Near Bar Offset	-0.8458	-0.6035	NONE
Near Dens Offset	-0.4663	-0.2726	NONE
Near Peak Offset	-0.3118	-0.2985	NONE
Near Lith Offset	0.0002	0.0390	NONE
Far Bar Offset	-0.2435	-0.1880	NONE
Far Dens Offset	-0.1113	-0.0599	NONE
Far Peak Offset	-0.0577	-0.0177	NONE
Far Lith Offset	0.0502	0.1296	NONE
Near Bar Background	834.39	830.03	700 - 1450
Near Dens Background	276.52	275.07	230 - 480
Near Peak Background	119.68	120.39	100 - 210
Near Lith Background	147.05	146.50	125 - 260
Far Bar Background	651.14	652.56	450 - 900
Far Dens Background	255.84	256.55	175 - 345
Far Peak Background	102.54	101.59	70 - 140
Far Lith Background	103.28	103.77	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.688	1.691	0.003	+/- 0.015
Pe	2.624	2.611	-0.013	+/- 0.150
ALUMINUM				
Density (g/cc)	2.601	2.602	0.001	+/- 0.01500
Pe	3.058	3.071	0.013	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				

Background	-0.0018	+/- 0.0110	-0.0005	+/- 0.0140
Magnesium Block	0.0002	+/- 0.0110	-0.0004	+/- 0.0140
Aluminum Block	0.0005	+/- 0.0110	0.0005	+/- 0.0140
Resolution	8.50	6.00 - 11.50	8.71	6.00 - 11.50
Internal Verifier(B+D+P+L)	1372	1200 - 2700	1114	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 Pad - 11795867	Reference Calibration Date: 02-Aug-13 15:24:51
Engineer: J. PINKETT	Calibration Date: 08-Aug-13 05:31:18
Software Version: WL INSITE R3.8.4 (Build 5)	Calibration Version: 1

Pad Temperature: 75.2 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1371.990	1375.772	3.782	14.969
Far (B+D+P+L) cps	1114.482	1119.226	4.744	17.590
Near Resolution	8.50	8.62	0.120	0.50
Far Resolution	8.71	8.92	0.210	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION

Tool Name: IDT - 11277451	Reference Calibration Date: 22-Dec-11 12:25:38
Engineer: R. TWEETEN	Calibration Date: 12-Dec-12 09:29:09
Software Version: WL INSITE R3.8.0 (Build 2)	Calibration Version: 1

Reference Gravity Field: 1.0000 g

Reference Magnetic Field: 52800.0000 nT

* QF : value of 0 is shown for bad quality if | data - reference | > (2 * standard deviation) and > (0.5% of reference value)

ACCELEROMETER CALIBRATION RAW DATA VALUE					
Raw Acc X	Raw Acc Y	Raw Acc Z	Quality(Gravity)	Quality Error(%)	QF
0.4269	-0.5884	-0.0061	1.0002	99.9829	1
-0.5599	-0.4780	-0.0063	1.0000	99.9967	1
-0.4375	0.6033	-0.0067	1.0000	99.9953	1
0.5831	0.4446	-0.0061	1.0000	99.9994	1
-0.0172	0.7436	-0.0064	0.9999	99.9936	1
0.6184	0.3018	0.1163	0.9998	99.9824	1
-0.0564	0.7421	-0.0065	1.0001	99.9927	1
0.7216	0.0940	-0.0061	1.0001	99.9879	1
0.0000	0.0000	0.0001	0.0000	00.0000	1

-0.0078	-0.7309	-0.0061	0.9999	99.9889	1
-0.7395	-0.0298	-0.0065	1.0000	99.9995	1
-0.0143	0.0013	0.3591	1.0000	99.9969	1
0.6578	-0.1071	-0.1504	0.9999	99.9929	1

ACCELEROMETER QUALITY SUMMARY

Average Calculated Gravity Field	1.0000 g
Standard Deviation Calculated Gravity Field	0.0001 g

ACCELEROMETER GAIN AND OFFSET

	GAIN	OFFSET
ACC X	1.3631752729	0.0093273642
ACC Y	1.3562285900	-0.0086623570
ACC Z	2.7358396053	0.0174727775

* QF : value of 0 is shown for bad quality if | data - reference | > (3 * standard deviation) and > (1% of reference value)

MAGNETOMETER CALIBRATION RAW DATA VALUE

Raw Mag X	Raw Mag Y	Raw Mag Z	Quality(Magnetic)	Quality Error(%)	QF
-0.1621	1.2632	-0.0843	53389.0742	98.8843	1
1.2405	0.2697	-0.0857	53529.2031	98.6189	1
0.1707	-1.2622	-0.0893	54134.3047	97.4729	1
-1.2427	-0.1685	-0.0880	52686.8008	99.7856	1
-0.0479	-1.0868	0.4088	51367.3828	97.2867	1
-1.0982	-0.5665	-0.3070	53254.3945	99.1394	1
0.2701	-1.0216	-0.6403	52368.3047	99.1824	1
-0.9920	-0.3106	-0.6376	51226.5664	97.0200	1
-0.1738	1.0402	-0.6485	51847.8633	98.1967	1
1.0246	0.2544	-0.6342	51825.9453	98.1552	1
-0.2197	-0.5608	0.9200	52932.6523	99.7488	1
-0.7837	-0.0929	-0.9906	54458.1367	96.8596	1

MAGNETOMETER QUALITY SUMMARY

Average Calculated Magnetic Field	52751.7188 nT
Standard Deviation Calculated Magnetic Field	1052.5829 nT

MAGNETOMETER GAIN AND OFFSET

	GAIN	OFFSET
MAG X	42089.3085937500	159.4645385742
MAG Y	42207.0781250000	-351.8444519043
MAG Z	46856.6171875000	3174.7180175781

Noise Level Value: 0.000219 cnts

Noise Level Cal Value: 0.0006 g

ICT SHOP CALIBRATION

Tool Name: ICT - 11294351

Reference Calibration Date: 05-Jul-13 23:34:50

Engineer: J. PINKETT

Calibration Date: 07-Aug-13 10:53:51

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

CALIPERS AND RINGS

Ring	Measured	Calibrated	Units
CALIPER 1:			
Small Ring	3.67	3.65	in
Medium Ring	8.11	8.00	in
Large Ring	15.12	15.00	in

Large Ring	15.12	15.00	in
X-Large Ring	21.03	21.00	in
CALIPER 2:			
Small Ring	3.65	3.65	in
Medium Ring	7.99	8.00	in
Large Ring	14.98	15.00	in
X-Large Ring	21.01	21.00	in
CALIPER 3:			
Small Ring	3.53	3.65	in
Medium Ring	7.89	8.00	in
Large Ring	14.88	15.00	in
X-Large Ring	20.94	21.00	in
CALIPER 4:			
Small Ring	3.44	3.65	in
Medium Ring	7.85	8.00	in
Large Ring	14.80	15.00	in
X-Large Ring	20.94	21.00	in
CALIPER 5:			
Small Ring	3.58	3.65	in
Medium Ring	7.99	8.00	in
Large Ring	15.02	15.00	in
X-Large Ring	21.00	21.00	in
CALIPER 6:			
Small Ring	3.70	3.65	in
Medium Ring	8.15	8.00	in
Large Ring	15.20	15.00	in
X-Large Ring	21.10	21.00	in

ICT FIELD CALIBRATION

Tool Name:	ICT - 11294351	Reference Calibration Date:	07-Aug-13 10:53:51
Engineer:	J. PINKETT	Calibration Date:	08-Aug-13 05:28:20
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1

CALIPERS			
Caliper	Shop	Field	Units
Caliper 1	8.00	8.02	in
Caliper 2	8.00	8.00	in
Caliper 3	8.00	8.05	in
Caliper 4	8.00	8.02	in
Caliper 5	8.00	8.00	in
Caliper 6	8.00	7.96	in

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACRt Sonde - 11294353	Reference Calibration Date:	05-Jul-13 15:38:14
Engineer:	J. SCHMIDT	Calibration Date:	05-Aug-13 17:23:18
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11302817		

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.00	1.05	0.95	1.01	1.05	0.95	1.00	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05

A5 (10")	N/A	N/A	N/A	0.95	1.02	1.05	0.95	1.02	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.99	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-1.86	2	-6	-4.67	-2	-8	-4.90	-2
A2 (50")	-7	-2.22	0	-7	-2.98	0	-7	-4.70	0
A3 (29")	-27	-13.82	-9	-9	-3.72	-3	-7	-3.60	-1
A4 (17")	-180	-92.44	-60	-45	-29.77	-15	-39	-25.60	-13
A5 (10")	N/A	N/A	N/A	-150	-99.42	-50	-80	-48.36	-10
A6 (6")	N/A	N/A	N/A	175	343.48	525	90	172.36	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.95	1.3
36K	1.0	1.84	2.0
72K	1.0	1.19	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11812883						
Gamma Ray Calibrator	247.3	247.7	-----	-0.4	+/- 9.00	api
CSNG-10846351						
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	23.7	23.7	-----	0.0	-----	Channel #
583 KEV Peak Channel #	53.2	53.3	-----	-0.1	-----	Channel #
2614 KEV Peak Channel #	219.5	219.7	-----	-0.2	-----	Channel #
DSNT-11812167						
Snow-Block Porosity	0.0769	0.0656	-----	0.0113	+/- 0.0150	decp
SDLT-11812177						
Pad Extension	3.75	3.75	-----	0.00	+/-0.10	in
Ring Diameter	8.25	8.23	-----	0.02	+/-0.15	in
SDLT Pad-11795867						
Near(B+D+P+L)	1371.990	1375.772	-----	-3.782	+/-14.969	cps
Far(B+D+P+L)	1114.482	1119.226	-----	-4.744	+/-17.590	cps
ICT-11294351						
Caliper 1	8.00	8.02	-----	-0.02	+/-0.25	in
Caliper 2	8.00	8.00	-----	0.00	+/-0.25	in
Caliper 3	8.00	8.05	-----	-0.05	+/-0.25	in
Caliper 4	8.00	8.02	-----	-0.02	+/-0.25	in
Caliper 5	8.00	8.00	-----	0.00	+/-0.25	in
Caliper 6	8.00	7.96	-----	0.04	+/-0.25	in

ACRt Sonde-11294353

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						124.43 ft
RWCH-10409638 135.00 lbs		Ø 3.625 in →		← Load Cell @ 120.75 ft ← BH Temperature @ 120.18 ft	6.25 ft	118.18 ft
GTET-11812883 165.00 lbs		Ø 3.625 in →		← GammaRay @ 112.12 ft	8.52 ft	109.66 ft
	UnivWearRing3.6-11812883 5.00 lbs	Ø 4.200 in* →				
CSNG-10846351 114.00 lbs		Ø 3.625 in →		← CSNG @ 104.04 ft	8.17 ft	101.50 ft
	UnivWearRing3.6-10846351 5.00 lbs	Ø 4.200 in* →				
DSNT-11812167 174.00 lbs	DSN Decentralizer-11812167 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 94.56 ft ← DSN Near @ 93.81 ft	9.69 ft	91.81 ft
	UnivWearRing3.6-11812167 5.00 lbs	Ø 4.200 in* →				
SDLT-11812177 360.00 lbs		Ø 4.500 in →		← SDL Caliper @ 83.81 ft ← SDL @ 83.80 ft	10.81 ft	81.00 ft
	SDLT Pad-11795867 65.00 lbs	Ø 4.750 in* →				
Flex Joint -						

Pressure Comp-
10847053
140.00 lbs

Ø 3.625 in →

5.97 ft

75.03 ft

IDT-11277451
150.00 lbs

Ø 3.625 in →

7.58 ft

67.44 ft

ICT-11294351
330.00 lbs

Ø 3.625 in →

12.83 ft

← ICT Caliper @ 57.40 ft

54.61 ft

Centralizer 25-00000001
8.00 lbs

Ø 4.000 in* →

Regal Standoff 6_75-
00000001
20.00 lbs

Ø 6.750 in* →

Wavesonic-l-
90296673
520.00 lbs

Ø 3.625 in →

34.07 ft

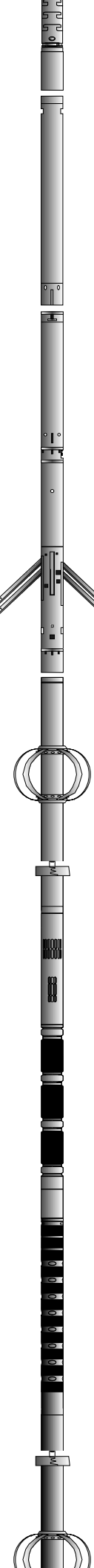
← Wavesonic Delay @ 32.04 ft

Regal Standoff 6_75-
00000002
20.00 lbs

Ø 6.750 in* →

Centralizer 25-00000002
8.00 lbs

Ø 4.000 in* →



ACRt Instrument-
11302817
50.00 lbs

Regal Standoff 6_75-
00000003
20.00 lbs

Ø 6.750 in*
Ø 3.625 in

20.54 ft
5.03 ft

ACRt Sonde-
11294353
200.00 lbs

Ø 3.625 in

← Mud Resistivity @ 14.15 ft

← ACRt @ 10.17 ft

15.51 ft

SP Ring-12345671
0.00 lbs

Ø 3.625 in*

← SP @ 2.57 ft

14.22 ft

Temperature Sub-
00000001
15.00 lbs

Ø 3.625 in

1.29 ft

Bull Nose-00000001
5.00 lbs

Ø 2.750 in

0.96 ft

0.33 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	10409638	135.00	6.25	118.18	300.00
GTET	Gamma Telemetry Tool	11812883	165.00	8.52	109.66	60.00
UWR3P6	Universal Wear Ring 3 5-8 inch	11812883	5.00	0.35	* 110.39	300.00
CSNG	Compensated Spectral Natural Gamma	10846351	114.00	8.17	101.50	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch	10846351	5.00	0.35	* 102.50	300.00
DSNT	Dual Spaced Neutron	11812167	174.00	9.69	91.81	60.00
UWR3P6	Universal Wear Ring 3 5-8 inch	11812167	5.00	0.35	* 91.93	300.00
DCNT	DSN Decentralizer	11812167	6.60	5.13	* 95.14	300.00
SDLT	Spectral Density Tool	11812177	360.00	10.81	81.00	60.00
SDLP	Density Insite Pad	11795867	65.00	2.55	* 83.21	60.00
FLEX	Flex Joint - Pressure Compensated	10847053	140.00	5.97	75.03	300.00
IDT	Insite Directional Tool	11277451	150.00	7.58	67.44	30.00
ICT	Six Independent Arm Caliper	11294351	330.00	12.83	54.61	30.00
WSTT	WaveSonic Insite	90296673	520.00	34.07	20.54	30.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	* 22.48	300.00
RSOF	Regal Standoff 6.75in	00000002	20.00	0.52	* 26.87	300.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	* 47.56	300.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	* 50.02	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11302817	50.00	5.03	15.51	300.00
RSOF	Regal Standoff 6.75in	00000003	20.00	0.52	* 18.09	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11294353	200.00	14.22	1.29	300.00
SP	SP Ring	12345671	0.00	0.25	* 2.57	300.00
TMAX	Temperature Sub - 3_625 OD	00000001	15.00	0.96	0.33	300.00
BLNS	Bull Nose	00000001	5.00	0.33	0.00	300.00
Total			2,520.60	124.43		

* Not included in Total Length and Length Accumulation.

COMPANY	CONOCO PHILLIPS COMPANY		
WELL	MORAN TRUST 2-1		
FIELD	WILDCAT		
COUNTY	ARAPAHOE	STATE	CO
HALLIBURTON		COMPENSATED SPECTRAL NATURAL GAMMA	