

Company: Conoco Phillips Company

Well: State of Colorado 36-1M

Field: Wildcat

County: Adams State: Colorado

HNGS
Hostile Natural Gamma ray Spectro

County:	Adams				
Field:	Wildcat				
Location:	Lat/Long : 39.7446/-104.4984				
Well:	State of Colorado 36-1M				
Company:	Conoco Phillips Company				
		Location:			
		Lat/Long : 39.7446/-104.4984	Elev.:	K.B.	5579.00 ft
		SHL : 2396' FSL X 2600' FEL NWSE		G.L.	5555.00 ft
				D.F.	5578.00 ft
		Permanent Datum:	Ground Level	Elev.:	5555.00 f
		Log Measured From:	Kelly Bushing	24.00 ft	above Perm.Datum
		Drilling Measured From:	Kelly Bushing		
		API Serial No.	Section:	Township:	Range:
		05-001-09759-0000	36	3S	64W
Logging Date	25-Dec-2012				

Run Number Run 1

Depth Driller 7700.00 ft

Schlumberger Depth 7701.00 ft

Bottom Log Interval 7701.00 ft

Top Log Interval 1791.00 ft

Casing Driller Size @ Depth 9.625 in @ 1803.00 ft

Casing Schlumberger 1803 ft

Bit Size 8.75 in

Type Fluid In Hole Synthetic Oil

Density Viscosity 9.25 lbm/gal 56 s

Fluid Loss PH

MUD Source of Sample N/A

RM @ Meas Temp N/A

RMF @ Meas Temp N/A

RMC @ Meas Temp N/A

Source RMF N/A

RM @ BHT N/A

Max Recorded Temperatures 228 degF 228

Circulation Stopped 25-Dec-2012 11:30:00

Logger on Bottom 26-Dec-2012 21:30:04

Unit Number Location: 3022 Fort Morgan

Recorded By Arvin Shi

Witnessed By Frank Holubec

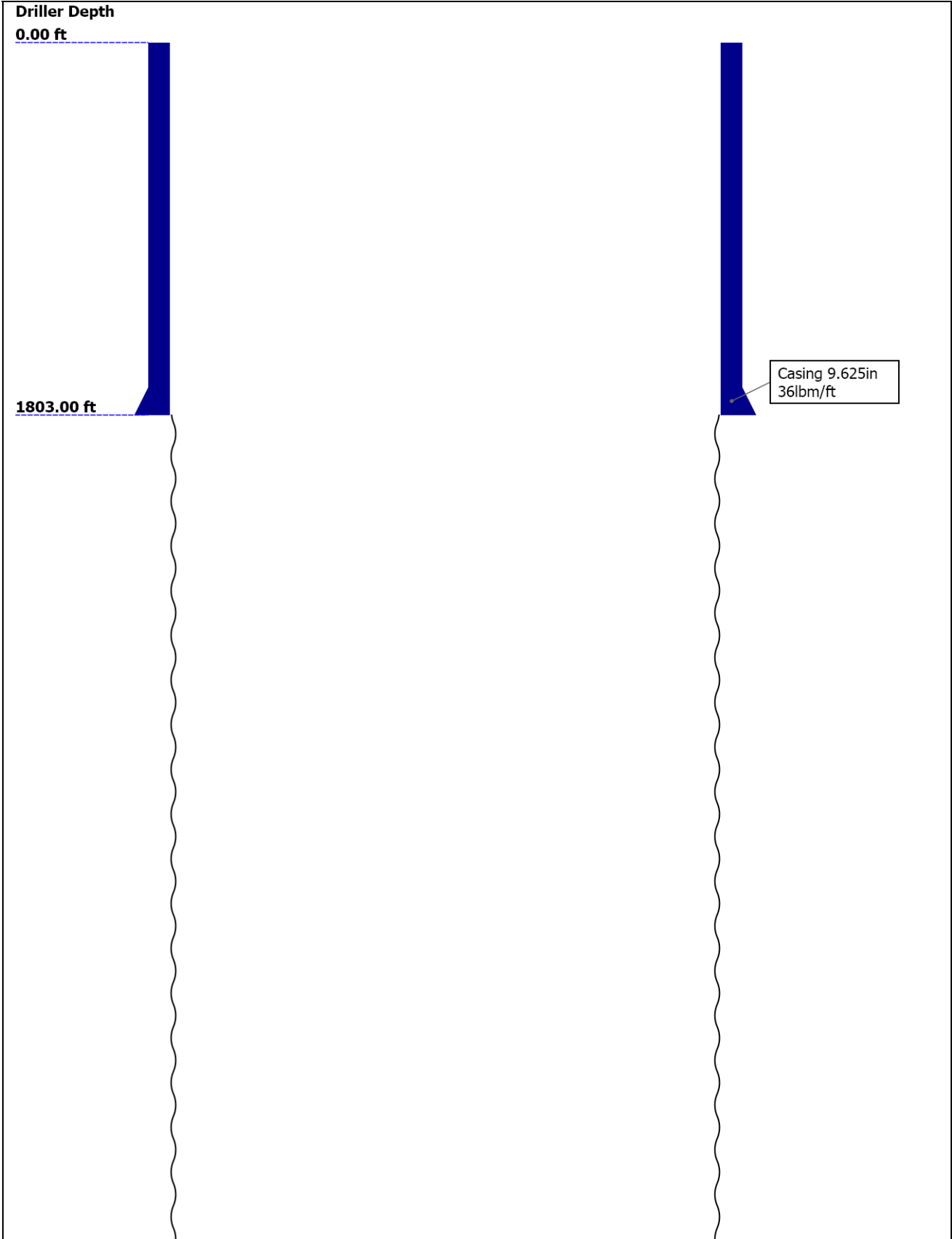
Disclaimer

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Well Sketch



7700.00 ft

Open Hole 8.75in

Borehole Size/Casing/Tubing Record

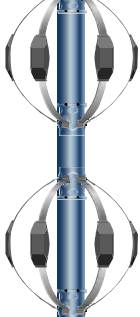
Bit						
Bit Size (in)	8.75					
Top Driller (ft)	1803					
Top Logger (ft)	1791					
Bottom Driller (ft)	7700					
Bottom Logger (ft)	7701					
Casing						
Size (in)	9.625					
Weight (lbm/ft)	36					
Inner Diameter (in)	8.914					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	1803					
Bottom Logger (ft)	1803					

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	25-Dec-2012					
Time Log Started	20:23:05					
Date Log Finished	26-Dec-2012					
Time Log Finished	03:20:07					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)	7701.00					
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	8.750					
Logging Unit Number	3022					
Logging Unit Location	Fort Morgan					
Recorded By	Arvin Shi					
Witnessed By	Frank Holubec					
Service Order Number	C6VJ-00037					

Remarks and Equipment Summary

Run 1: Toolstring				Run 1: Remarks
Equip name	Length	MP name	Offset	All Schlumberger depth measurement followed IDW used as primary depth measurement and Z-Chart as secondary depth measurement Tool string run as per tool sketch
LEH-QT LEH-QT	127.06			
EDTC-B EDTH-B EDTG-A EDTC-B	124.14			
MAST-B:8053 ECH-SF:8157 MAPC-BA:8159 MAMS-BA:8053 MASS-BA:8358 MAXS-BA:8183	117.64	CTEM ACCZ HV Gamma Ray TelStatus	120.64 0.00 0.00 118.77 117.64	
		MAMS	102.2	



PPC-B:8437 76.36
PPC-B:8437

MAXS 76.36

PPC-B Calipers 75.21

Adaptor_Head [2] 69.84

GPIT-F 65.34
GPIH-B
GPIC-F
DHRU-F

GPIT-F Incl inometer 63.93

AH-184[2] 61.34

GPIT 0.00

Adaptor_Head [1] 59.34

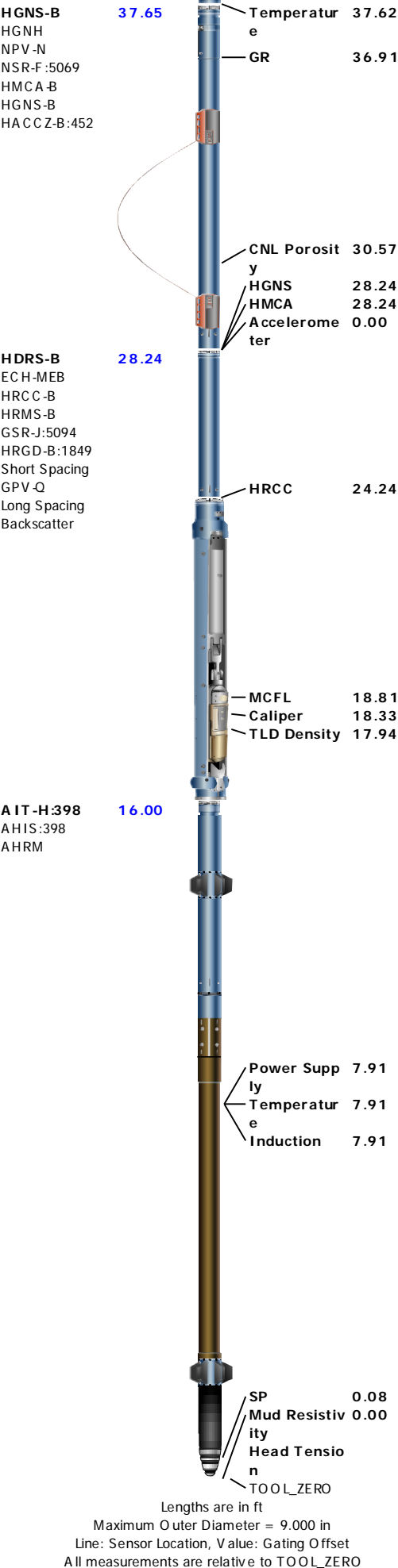
AH-184[1] 51.34

HNGS-BA 49.34
HEH-K:149
HNGS-BA

GR 46.35

HNGC-B:250 41.15
HNGH-A:87
HNGC-B:250

Tel Status 39.4



Depth Summary



















Depth Control Parameters	Run 1		
Conveyance Type	Wireline		
Rig Type	Land		
Depth Measuring Device	Run 1		
Type	IDW-B		
Serial Number	6868A		
Calibration Date	24-Oct-2012		
Calibration Cable Type	7-39 P-LXS		
Wheel Correction 1	-6		
Wheel Correction 2	-5		
Tension Device	Run 1		
Type	CMTD-B/A		
Serial Number	1109		
Calibration Date	30-Nov-2012		
Calibrator Serial Number	78135		
Calibration Points	10		
Calibration RMS	7		
Calibration Peak Error	15		
Logging Cable	Run 1		
Type	7-39P-LXS		
Logging Cable Length (ft)	24000.00		

Run 1

Integration Summary									
Output Channel(s)		Output Description		Input Parameter		Output Value		Unit	
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Depth Shift	Include Parallel Data	
Run 1	Log[4]:Up	Up	119.33 ft	7716.32 ft	25-Dec-2012 11:14:47 PM	26-Dec-2012 3:19:35 AM	0.00 ft		
All depths are referenced to toolstring zero									
Log	Run 1: Log[4]:Up								

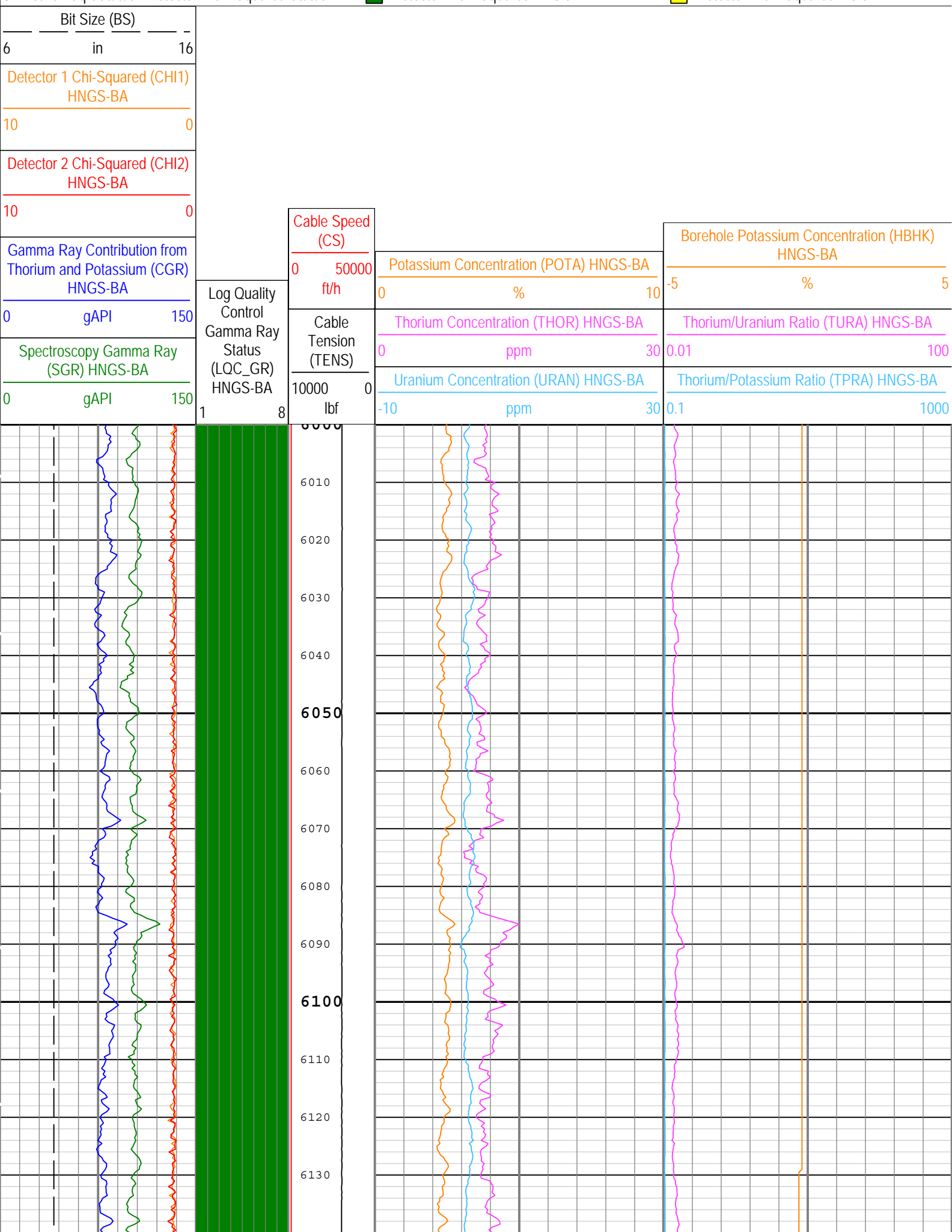
Description: HNGS Basic Format: Log (HNGS Basic) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Dec-2012 04:54:44

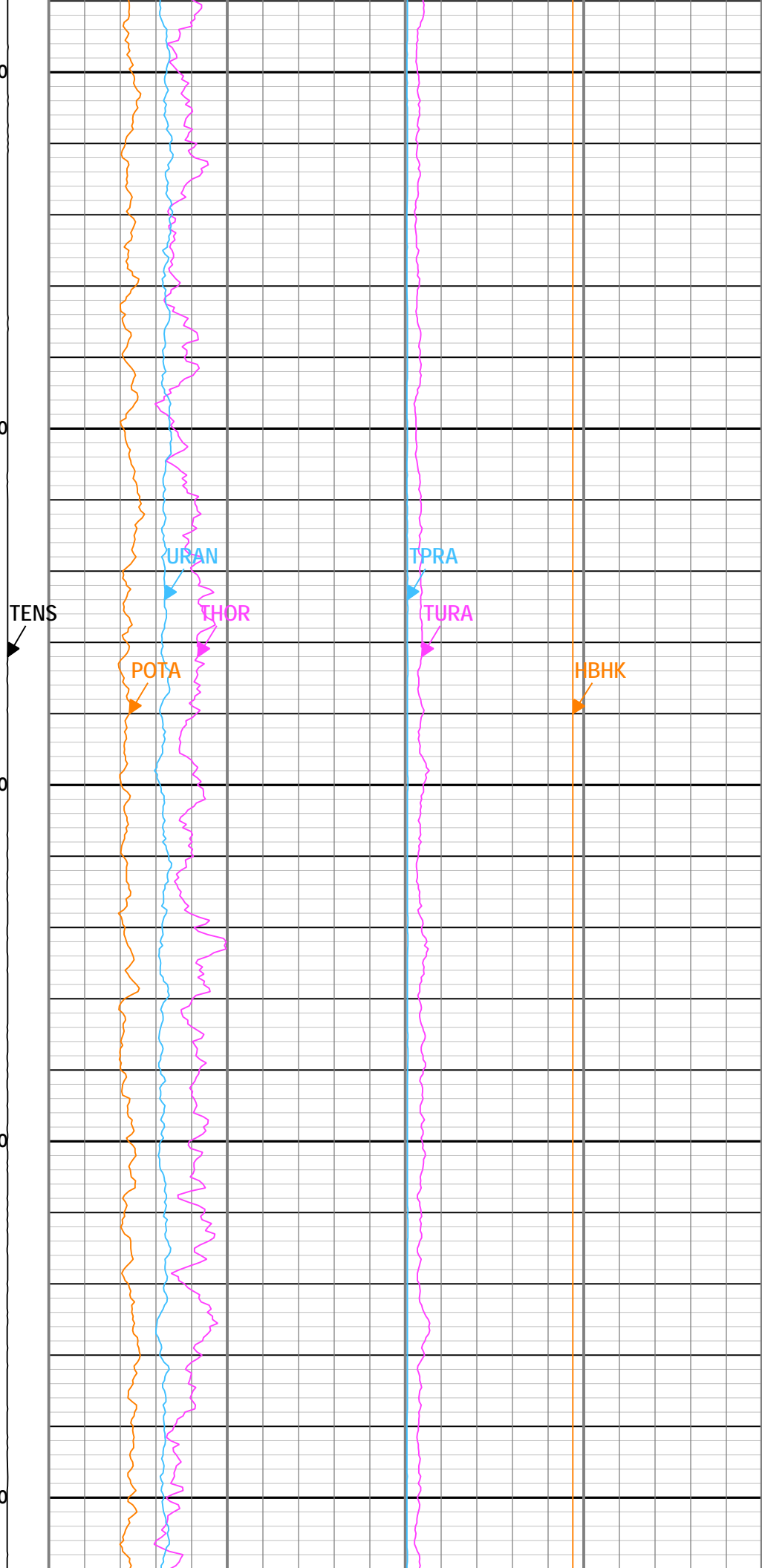
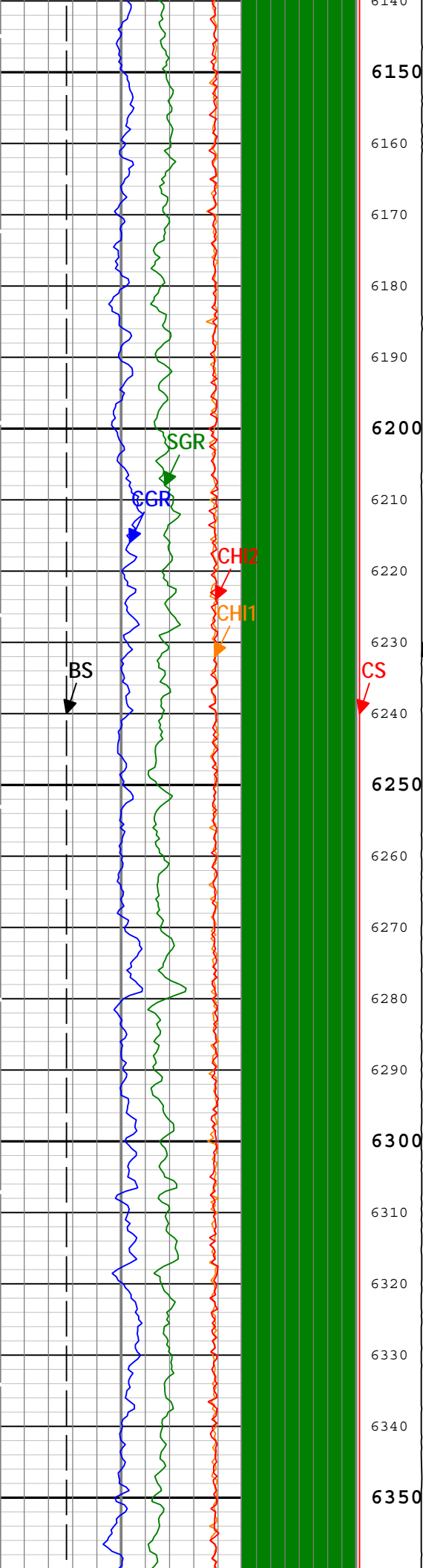
TIME_1900 - Time Marked every 60.00 (s)

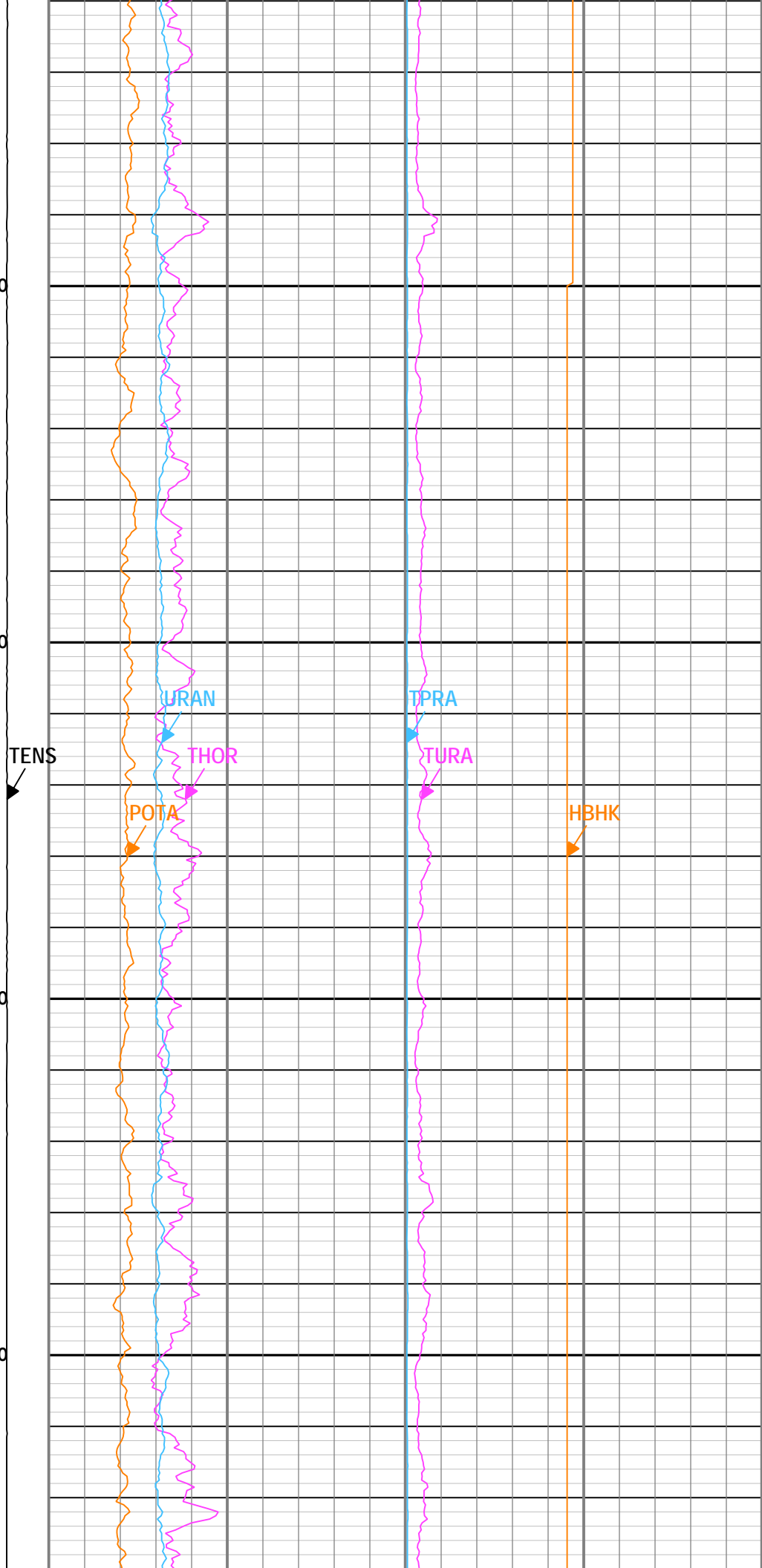
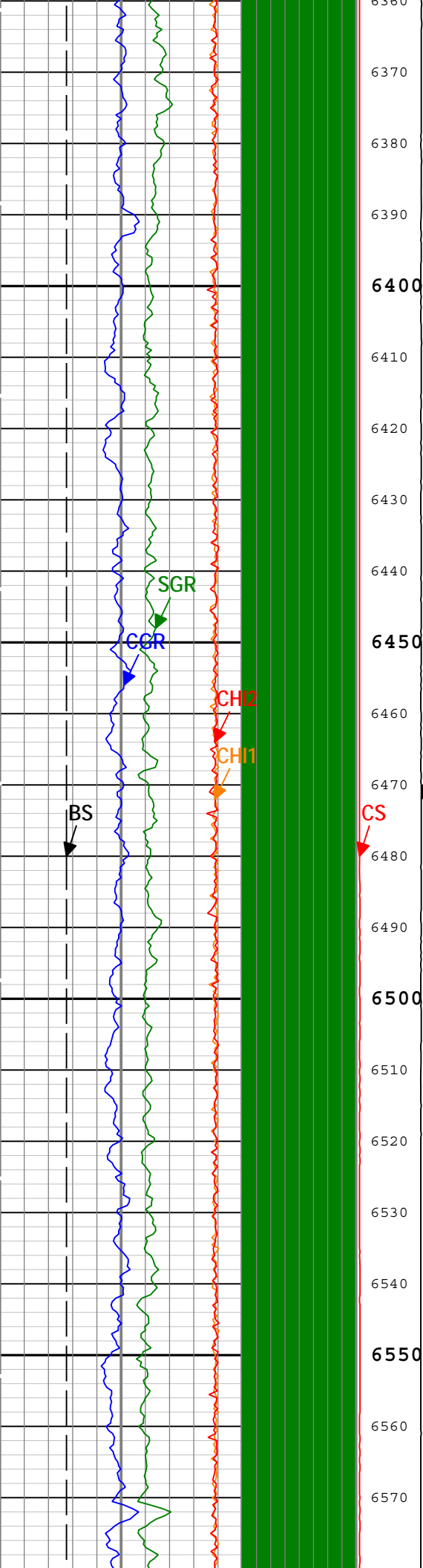
Log Quality Control Gamma Ray Status (LOC_GR) HNGS-BA									
1 - CarthwStatus - Cartridge Hardware Status :			 Cartridge Hardware: Normal			 Cartridge Hardware: Warning			
			 Cartridge Hardware: Error						
2 - CartTempStatus - Cartridge Temperature Status :			 Cartridge Temperature < 150 °C			 Cartridge Temperature >= 175 °C			
			 150 °C <= Cartridge Temperature < 175 °C						
3 - Det1TempStatus - Detector 1 Temperature Status :			 Detector 1 Temperature < 50 °C			 50 °C <= Detector 1 Temperature < 80 °C			
			 Detector 1 Temperature >= 80 °C						
4 - Det2TempStatus - Detector 2 Temperature Status :			 Detector 2 Temperature < 50 °C			 50 °C <= Detector 2 Temperature < 80 °C			
			 Detector 2 Temperature >= 80 °C						
5 - Det1CtrlLoopStatus - Detector 1 Control Loop Status :			 Detector 1 Control Loop: Normal			 Detector 1 Control Loop: Warning			
			 Detector 1 Control Loop: Error						
6 - Det2CtrlLoopStatus - Detector 2 Control Loop Status :			 Detector 2 Control Loop: Normal			 Detector 2 Control Loop: Warning			
			 Detector 2 Control Loop: Error						

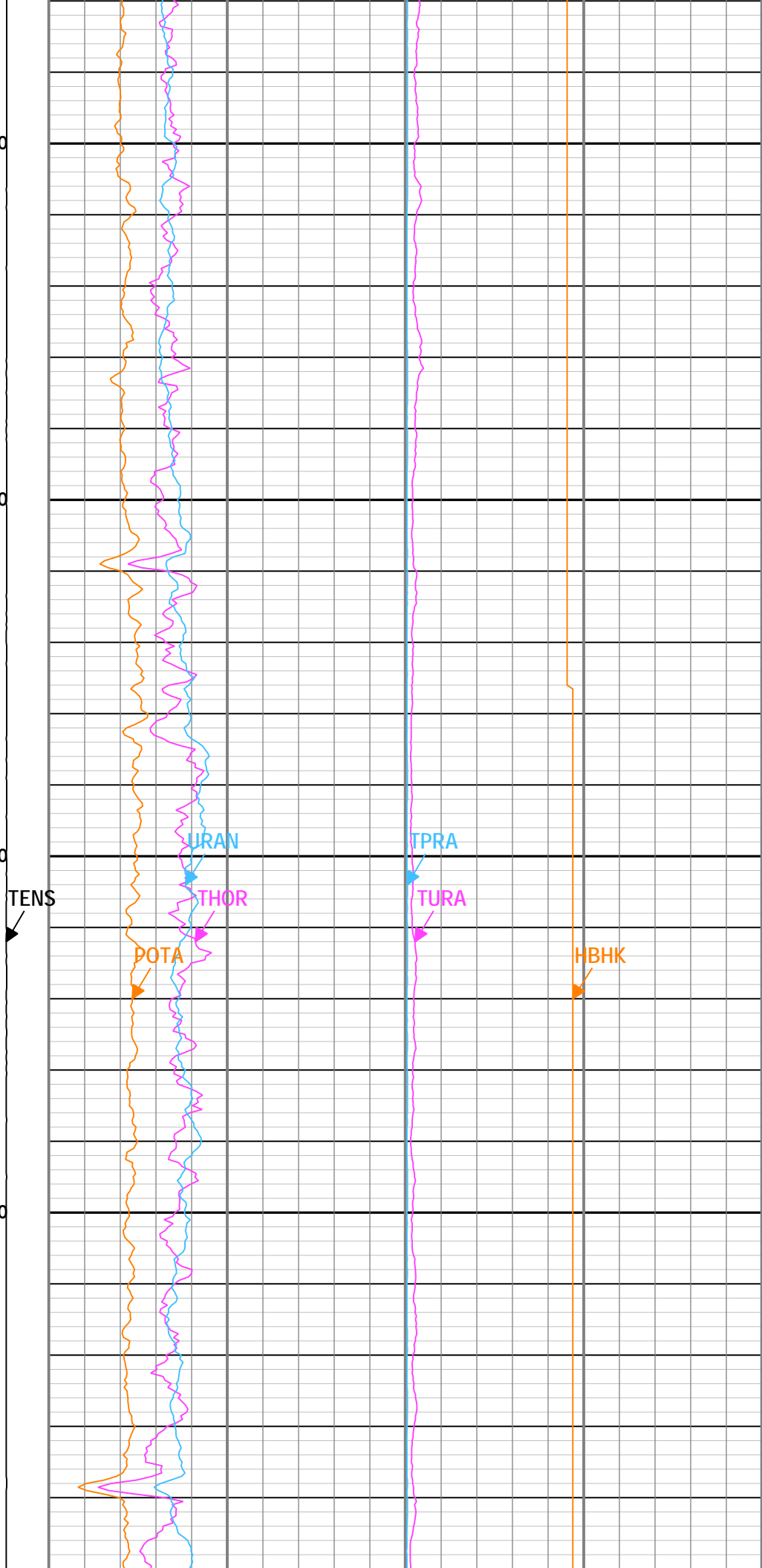
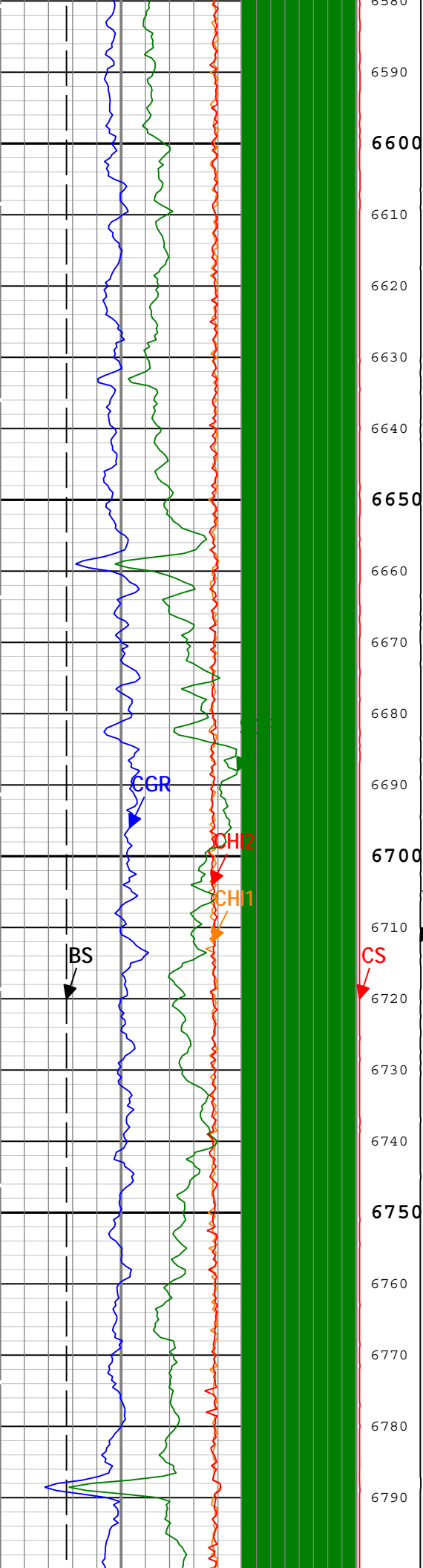
Detector 1 Chi Squared > 3.0

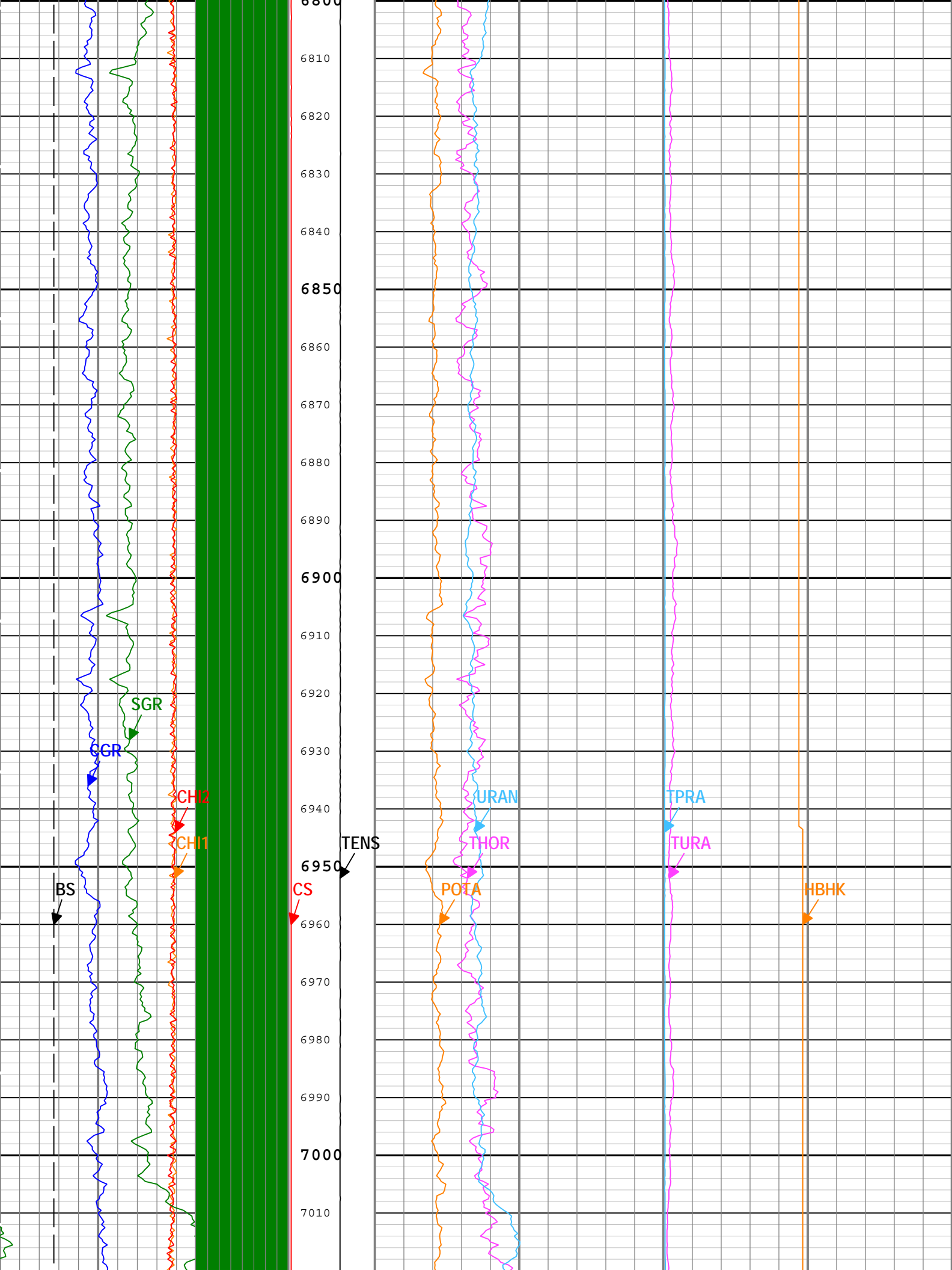
Detector 2 Chi Squared > 3.0

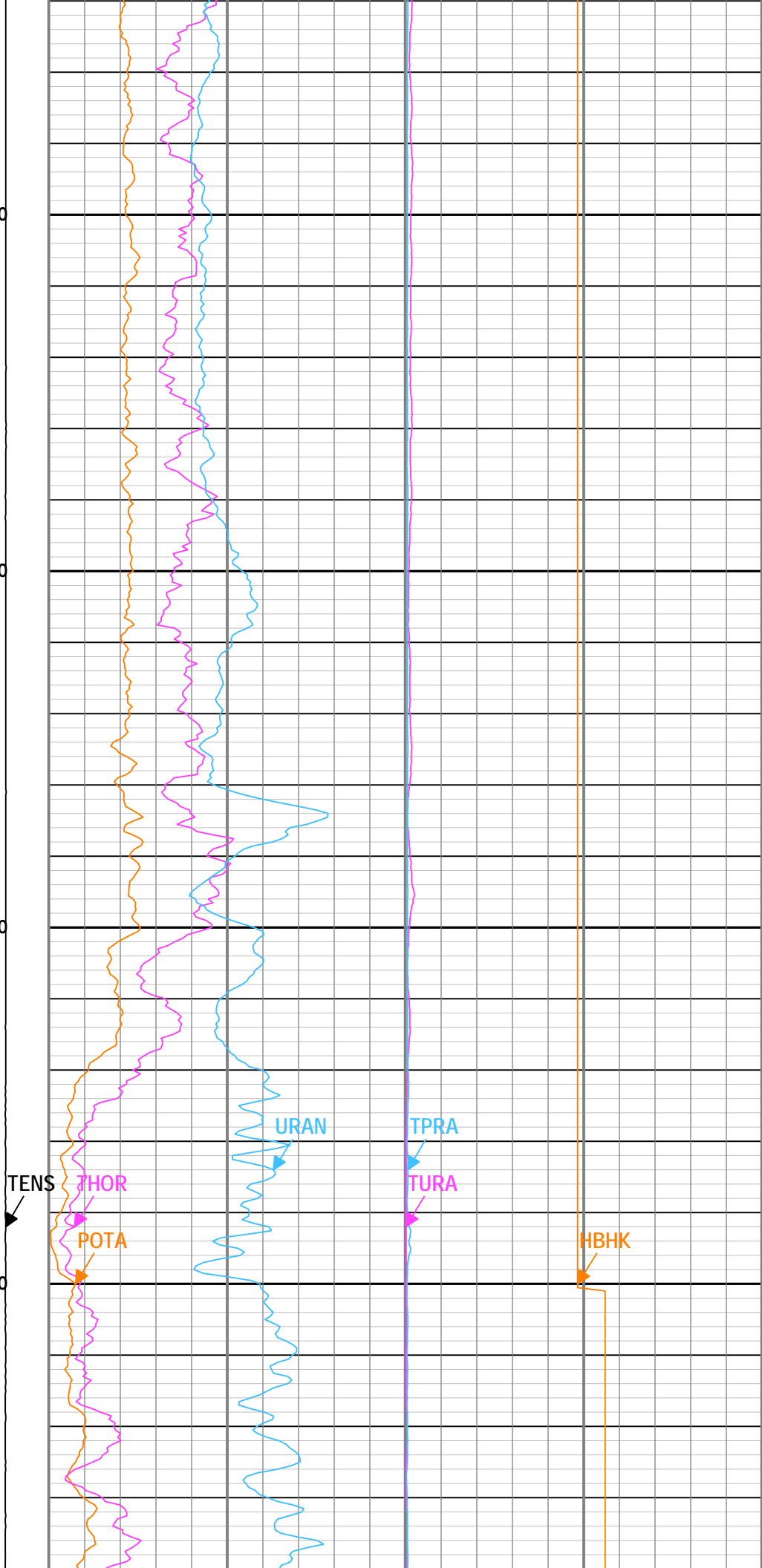
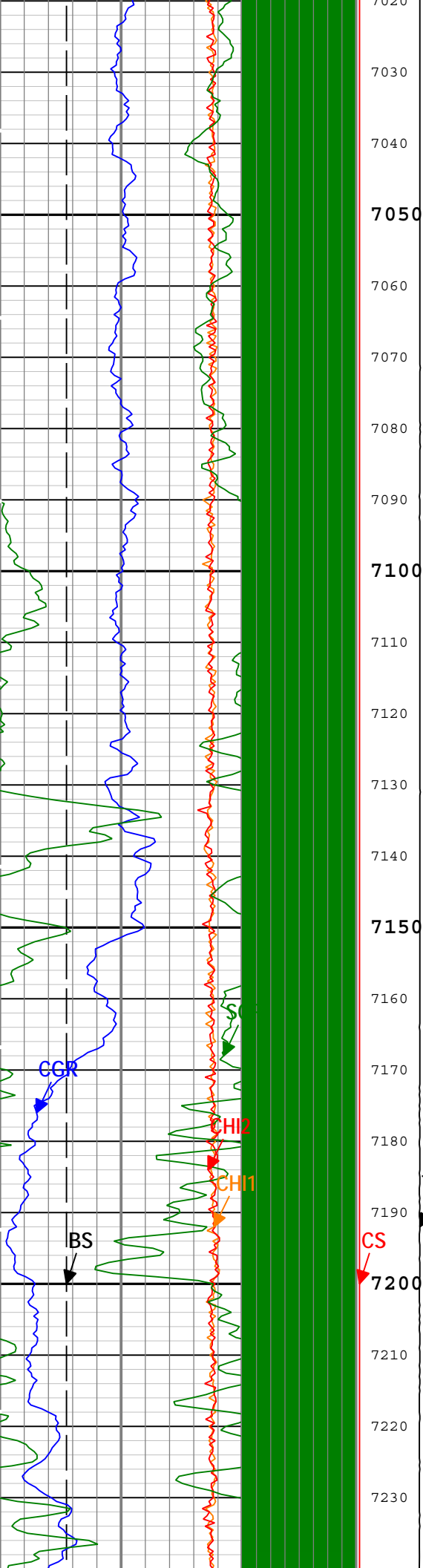


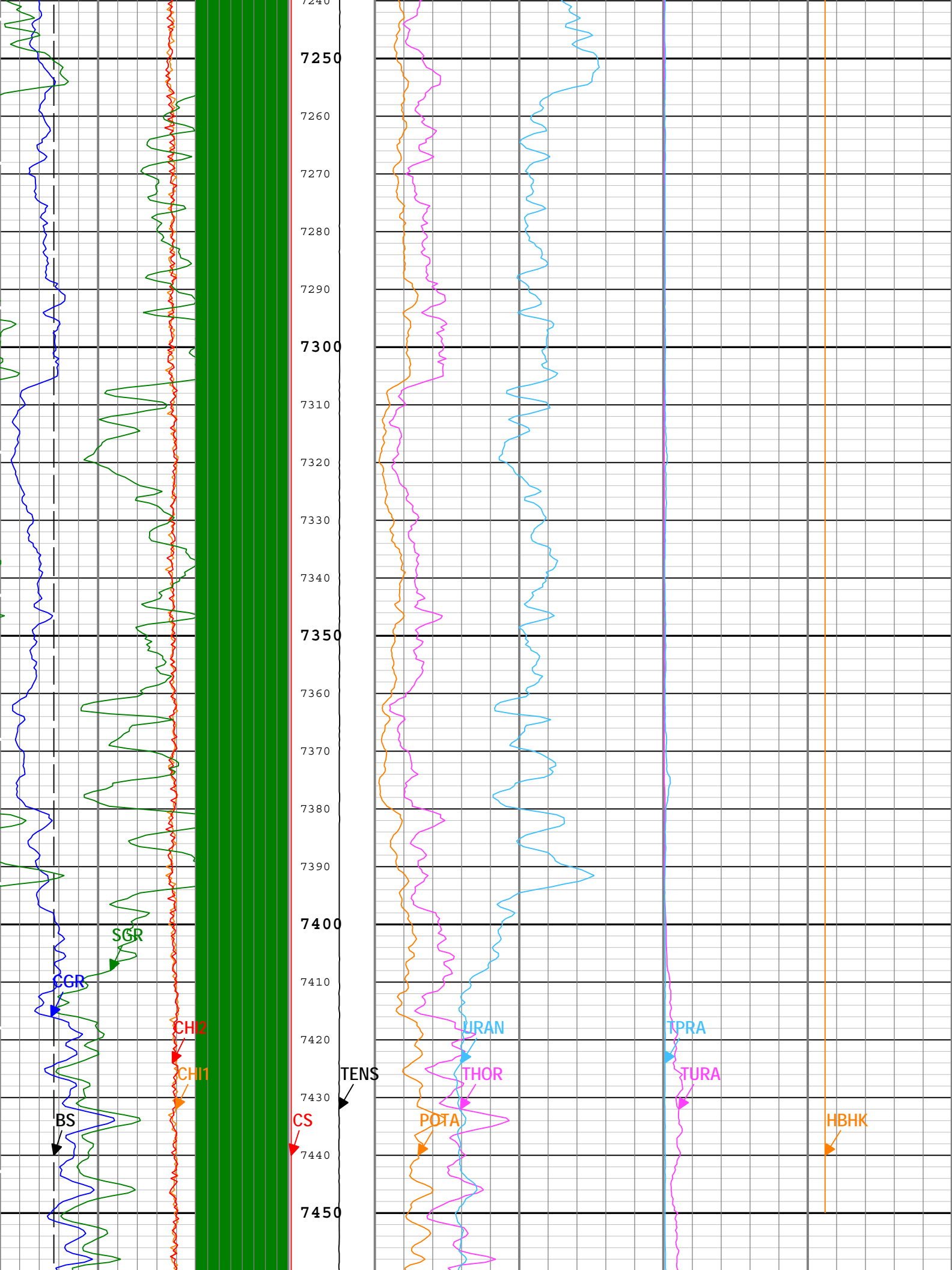


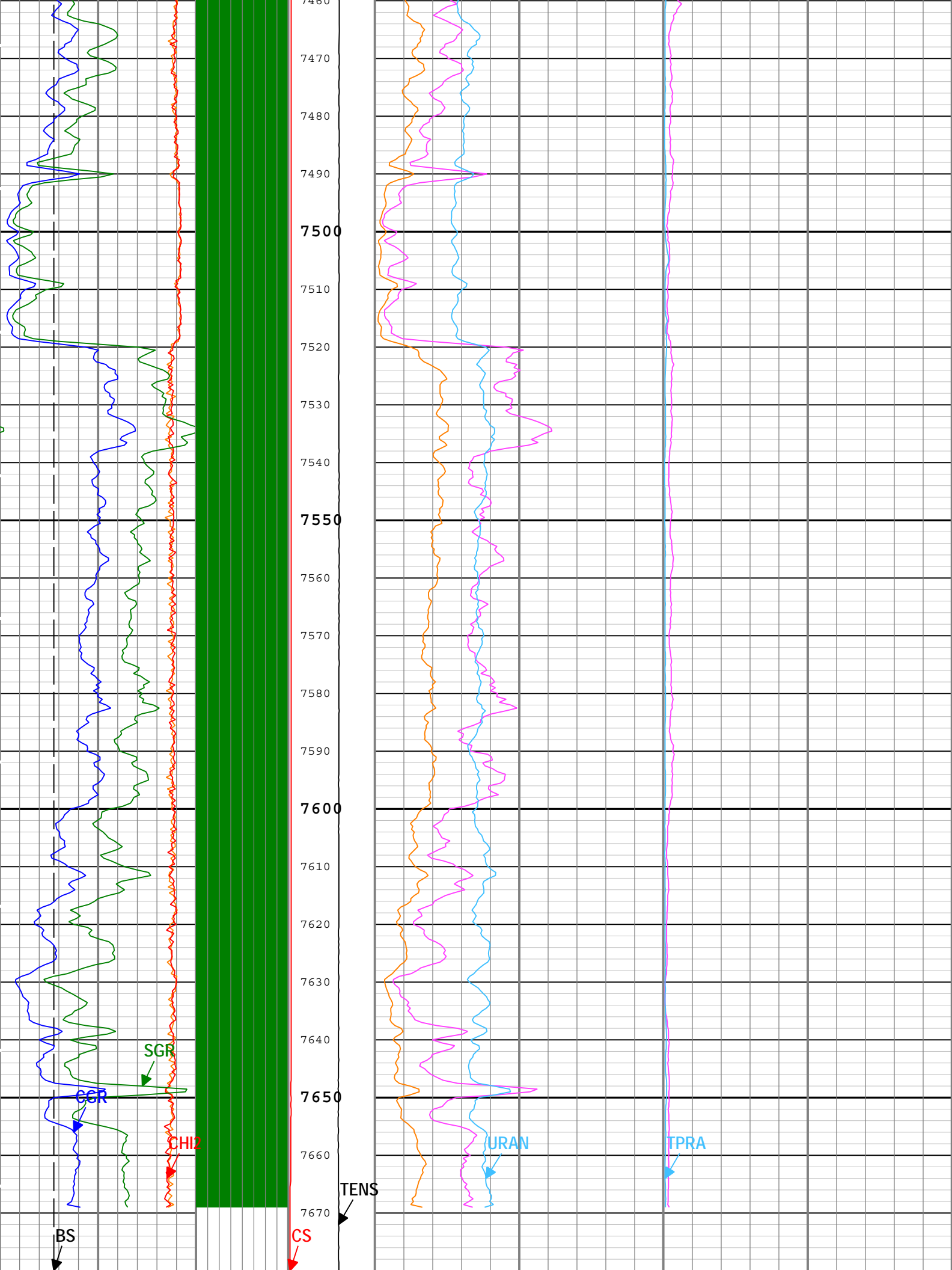


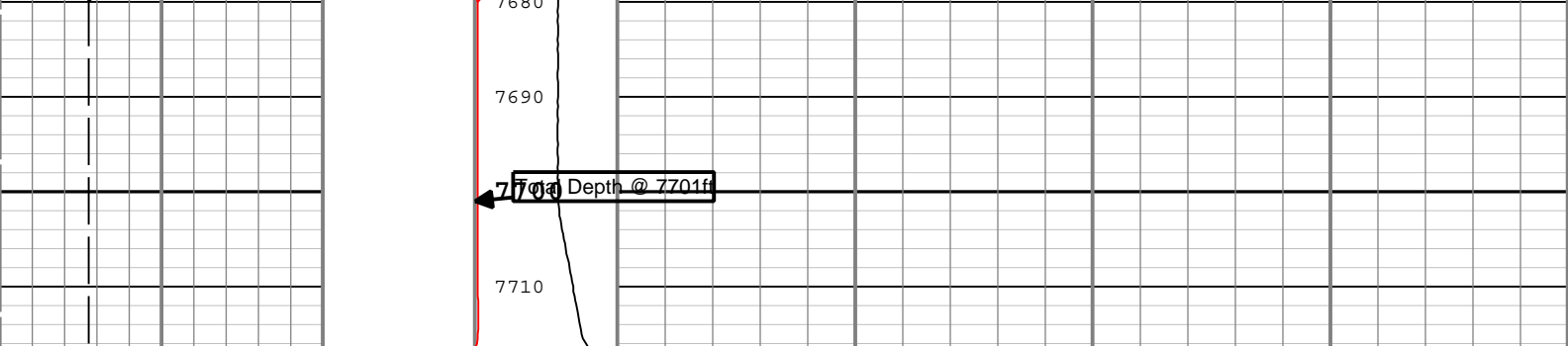












Bit Size (BS) 6 in 16	Log Quality Control Gamma Ray Status (LQC_GR) HNGS-BA	Cable Speed (CS) 0 50000 ft/h	Potassium Concentration (POTA) HNGS-BA 0 % 10	Borehole Potassium Concentration (HBHK) HNGS-BA -5 % 5
Detector 1 Chi-Squared (CHI1) HNGS-BA 10 0	1 8	Cable Tension (TENS) 10000 0 lbf	Thorium Concentration (THOR) HNGS-BA 0 ppm 30	Thorium/Uranium Ratio (TURA) HNGS-BA 0.01 100
Detector 2 Chi-Squared (CHI2) HNGS-BA 10 0			Uranium Concentration (URAN) HNGS-BA -10 ppm 30	Thorium/Potassium Ratio (TPRA) HNGS-BA 0.1 1000
Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA 0 gAPI 150				
Spectroscopy Gamma Ray (SGR) HNGS-BA 0 gAPI 150				

Log Quality Control Gamma Ray Status (LQC_GR) HNGS-BA

1 - CarthwStatus - Cartridge Hardware Status :	Cartridge Hardware: Normal	Cartridge Hardware: Warning
2 - CartTempStatus - Cartridge Temperature Status :	Cartridge Temperature < 150 °C 150 °C <= Cartridge Temperature < 175 °C	Cartridge Temperature >= 175 °C
3 - Det1TempStatus - Detector 1 Temperature Status :	Detector 1 Temperature < 50 °C Detector 1 Temperature >= 80 °C	50 °C <= Detector 1 Temperature < 80 °C
4 - Det2TempStatus - Detector 2 Temperature Status :	Detector 2 Temperature < 50 °C Detector 2 Temperature >= 80 °C	50 °C <= Detector 2 Temperature < 80 °C
5 - Det1CtrlLoopStatus - Detector 1 Control Loop Status :	Detector 1 Control Loop: Normal Detector 1 Control Loop: Error	Detector 1 Control Loop: Warning
6 - Det2CtrlLoopStatus - Detector 2 Control Loop Status :	Detector 2 Control Loop: Normal Detector 2 Control Loop: Error	Detector 2 Control Loop: Warning
7 - Det1ChiSqrdStatus - Detector 1 Chi Squared Status :	Detector 1 Chi Squared <= 3.0	Detector 1 Chi Squared > 3.0
8 - Det2ChiSqrdStatus - Detector 2 Chi Squared Status :	Detector 2 Chi Squared <= 3.0	Detector 2 Chi Squared > 3.0

TIME_1900 - Time Marked every 60.00 (s)

Description: HNGS Basic Format: Log (HNGS Basic) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 26-Dec-2012 04:54:44

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.75	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-B	-0.077	in

		After Before-Master After-Before	----- ----- -----	----- ----- -----	----- -0.001 -----	----- ----- -----	
Thru Cal Phase - 4	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-1.000 -1.000 ----- ----- -----	61.669 61.275 ----- -0.394 -----	119.000 119.000 ----- ----- -----	
Thru Cal Mag - 5	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1.173 1.173 ----- ----- -----	1.947 1.945 ----- -0.002 -----	2.737 2.737 ----- ----- -----	
Thru Cal Phase - 5	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-3.000 -3.000 ----- ----- -----	59.527 59.098 ----- -0.429 -----	117.000 117.000 ----- ----- -----	
Thru Cal Mag - 6	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1.173 1.173 ----- ----- -----	1.943 1.941 ----- -0.002 -----	2.737 2.737 ----- ----- -----	
Thru Cal Phase - 6	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-3.000 -3.000 ----- ----- -----	59.590 59.160 ----- -0.430 -----	117.000 117.000 ----- ----- -----	
Thru Cal Mag - 7	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.849 0.849 ----- ----- -----	1.382 1.379 ----- -0.003 -----	1.981 1.981 ----- ----- -----	
Thru Cal Phase - 7	deg	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-7.000 -7.000 ----- ----- -----	54.155 53.504 ----- -0.651 -----	113.000 113.000 ----- ----- -----	
SPA Zero	mV	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-50.000 -50.000 ----- ----- -----	-0.067 -0.044 ----- 0.023 -----	50.000 50.000 ----- ----- -----	
SPA Plus	mV	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	941.000 941.000 ----- ----- -----	993.481 992.764 ----- -0.717 -----	1040.000 1040.000 ----- ----- -----	
Temperature Zero	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	-0.050 -0.050 ----- ----- -----	0.000 0.000 ----- 0.000 -----	0.050 0.050 ----- ----- -----	
Temperature Plus	V	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	0.870 0.870 ----- ----- -----	0.920 0.920 ----- 0.000 -----	0.960 0.960 ----- ----- -----	

HDRS-B (HILT Density and Rxo Sonde, 125 degC) Calibration - Run 1

Primary Equipment :

HILT High-Resolution Control Cartridge, 125 degC

HRCC-B

HILT Resistivity Gamma-Ray Density Device, 125 degC

HRGD-B

1849

Auxiliary Equipment :

HRDD Backscatter Detector

Backscatter

HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5094
HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	
HILT High-Resolution Mechanical Sonde, 125 degC	HRMS-B	

Calibration Parameter :

Small Ring Size (Caliper Calibration Small Ring)	8.00
Large Ring Size (Caliper Calibration Large Ring)	12.00

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured): 19:21:43 23-Dec-2012 Expired by 1 days							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.01	10.00	
Large Ring	in	Before	12.00	9.00	12.16	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 13:24:08 12-Dec-2012							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.599	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.687	1.696	
Pe Aluminum		Master	2.570	2.470	2.560	2.670	
Pe Magnesium		Master	2.650	2.550	2.633	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 13:24:08 12-Dec-2012							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.4154	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.8449	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3270	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.4702	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.3995	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.3323	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 13:24:08 12-Dec-2012		Before (Measured): 19:13:59 23-Dec-2012 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7366		
		Before	0.7366	0.6998	0.7392	0.7734	
		Before-Master	-----	-----	0.0026	-----	
BS Window Sum	1/s	Master	1		9544		
		Before	9544	9067	9537	10021	
		Before-Master	-----	-----	-7	-----	
SS Window Ratio		Master	1.0000		0.4956		
		Before	0.4956	0.4708	0.4962	0.5204	
		Before-Master	-----	-----	0.0006	-----	
SS Window Sum	1/s	Master	1		9186		
		Before	9186	8727	9161	9645	
		Before-Master	-----	-----	-25	-----	
LS Window Ratio		Master	1.0000		0.2963		
		Before	0.2963	0.2814	0.2923	0.3111	
		Before-Master	-----	-----	-0.0040	-----	
LS Window Sum	1/s	Master	1		1071		
		Before	1071	1018	1069	1125	
		Before-Master	-----	-----	-2	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM): 13:24:08 12-Dec-2012		Before (Measured): 19:13:59 23-Dec-2012 Expired by 1 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1619	2400	
		Before		1000	1623	2400	
		Before-Master	-----	-100	4	100	
SS PM High Voltage	V	Master		1000	1680	2400	
		Before		1000	1681	2400	
		Before-Master	-----	-100	1	100	
LS PM High Voltage	V	Master		1000	1587	2400	
		Before		1000	1582	2400	

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	28.9	40.0	
		Before	0	5.0	28.6	40.0	
		After	----	----	----	----	
		Before-Master	----	-4.3	-0.3	4.3	
		After-Before	----	----	----	----	

Far Zero Measurement	1/s	Master	0	5.0	30.9	40.0	<div><div></div></div>
		Before	0	5.0	30.9	40.0	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	-4.6	0.0	4.6	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Near Plus Measurement - 0	1/s	Master	6031.0	4700.0	4961.0	6900.0	<div><div></div></div>
		Before	----	----	----	----	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	----	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Far Plus Measurement - 0	1/s	Master	2793.0	1900.0	2129.0	2900.0	<div><div></div></div>
		Before	----	----	----	----	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	----	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Near Corrected Plus Measurement - 0	1/s	Master		4700.0	4961.0	6900.0	<div><div></div></div>
		Before	----	----	----	----	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	----	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Far Corrected Plus Measurement - 0	1/s	Master		1900.0	2113.0	2900.0	<div><div></div></div>
		Before	----	----	----	----	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	----	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 19:27:37 23-Dec-2012 Expired by 1 days After:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
RGR Zero Measurement	gAPI	Before	30.0	0	79.7	120.0	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
RGR Plus Measurement	gAPI	Before	185.4	157.1	165.5	206.3	<div><div></div></div>
		After	----	----	NOT DONE	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
GR Calibration Gain		Before	0.89	0.80	1.00	1.05	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>

HNGS-BA (Hostile-environment Natural Gamma-ray Sonde) Calibration - Run 1

Primary Equipment :			
HNGS Sonde Element		HNGS-BA	
Auxiliary Equipment :			
Hostile Natural Gamma Ray Cartridge		HNGC-B	250
Housing for the HNGC		HNGH-A	87
HNGS Housing Element		HEH-K	149

HNGS Background and Na22 Set Point Determination - Detector 1 Check

Master (Measured): 19:04:29 23-Dec-2012		Before (Measured): 19:14:36 23-Dec-2012		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div></div>
Na 511 Peak Location		Master	40.000	37.500	39.687	42.500	<div><div></div></div>
		Before	40.000	37.500	39.742	42.500	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.055	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
Na 511 Peak Resolution	%	Master	15.500	12.000	17.110	19.000	<div><div></div></div>
		Before	15.500	12.000	16.088	19.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	-1.022	----	<div><div></div></div>
		After-Before	----	----	----	----	<div><div></div></div>
High Voltage DAC Value	V	Master	1150.000	850.000	1092.900	1600.000	<div><div></div></div>
		Before	1150.000	850.000	1092.958	1600.000	<div><div></div></div>
		After	----	----	----	----	<div><div></div></div>
		Before-Master	----	----	0.058	----	<div><div></div></div>

		After-Before	----	----	----	----	
Na 1785 Peak Location		Master	142.650	135.000	142.684	150.300	
		Before	142.650	135.000	142.225	150.300	
		After	----	----	----	----	
		Before-Master	----	----	-0.459	----	
		After-Before	----	----	----	----	
Na 1785 Peak Resolution	%	Master	8.500	7.000	9.416	11.000	
		Before	8.500	7.000	10.328	11.000	
		After	----	----	----	----	
		Before-Master	----	----	0.912	----	
		After-Before	----	----	----	----	
Temperature	degF	Master	59.900	-20.002	105.048	140.000	
		Before	59.900	-20.002	105.025	140.000	
		After	----	----	----	----	
		Before-Master	----	----	-0.023	----	
		After-Before	----	----	----	----	
Na Count Rate	CPS	Master	45.000	10.000	12.334	100.000	
		Before	45.000	10.000	12.721	100.000	
		After	----	----	----	----	
		Before-Master	----	----	0.387	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Detector 2 Check

Master (Measured): 19:04:29 23-Dec-2012		Before (Measured): 19:14:36 23-Dec-2012		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location		Master	40.000	37.500	39.582	42.500	
		Before	40.000	37.500	40.019	42.500	
		After	----	----	----	----	
		Before-Master	----	----	0.437	----	
		After-Before	----	----	----	----	
Na 511 Peak Resolution	%	Master	15.500	12.000	18.899	19.000	
		Before	15.500	12.000	16.821	19.000	
		After	----	----	----	----	
		Before-Master	----	----	-2.078	----	
		After-Before	----	----	----	----	
High Voltage DAC Value	V	Master	1150.000	850.000	1027.665	1600.000	
		Before	1150.000	850.000	1028.941	1600.000	
		After	----	----	----	----	
		Before-Master	----	----	1.276	----	
		After-Before	----	----	----	----	
Na 1785 Peak Location		Master	142.650	135.000	140.915	150.300	
		Before	142.650	135.000	142.448	150.300	
		After	----	----	----	----	
		Before-Master	----	----	1.533	----	
		After-Before	----	----	----	----	
Na 1785 Peak Resolution	%	Master	8.500	7.000	9.719	11.000	
		Before	8.500	7.000	8.652	11.000	
		After	----	----	----	----	
		Before-Master	----	----	-1.067	----	
		After-Before	----	----	----	----	
Temperature	degF	Master	59.900	-20.002	107.267	140.000	
		Before	59.900	-20.002	107.127	140.000	
		After	----	----	----	----	
		Before-Master	----	----	-0.140	----	
		After-Before	----	----	----	----	
Na Count Rate	CPS	Master	45.000	10.000	12.253	100.000	
		Before	45.000	10.000	12.593	100.000	
		After	----	----	----	----	
		Before-Master	----	----	0.340	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Ratio of Detector 1 to Detector 2

Master (Measured): 19:04:29 23-Dec-2012		Before (Measured): 19:14:36 23-Dec-2012		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coincidence Count Rate Ratio		Master	1.000	0.950	1.009	1.050	
		Before	1.000	0.950	1.007	1.050	
		After	----	----	----	----	
		Before-Master	----	----	-0.002	----	
		After-Before	----	----	----	----	

GPIT-F (General-Purpose Inclinationmeter Tool) Calibration - Run 1

Primary Equipment :

GPIT DHRU Sensor Block - F

DHRU-F

GPIT-F Accelerometers Master Calibration - Signals and Temperature Correction for Accelerometers

Master (EEPROM): 00:00:00 19-Jun-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
GPIT-F Accelero X Model[0,0]		Master	----	----	-0.04604037	----		
GPIT-F Accelero X Model[0,1]		Master	----	----	0.0006480469	----		
GPIT-F Accelero X Model[1,0]		Master	----	----	0.0002441994	----		
GPIT-F Accelero X Model[1,1]		Master	----	----	-1.11143E-07	----		
GPIT-F Accelero X Model[2,0]		Master	----	----	4.95043E-06	----		
GPIT-F Accelero X Model[2,1]		Master	----	----	8.694024E-10	----		
GPIT-F Accelero X Model[3,0]		Master	----	----	-3.010887E-08	----		
GPIT-F Accelero X Model[3,1]		Master	----	----	-4.213456E-12	----		
GPIT-F Accelero Y Model[0,0]		Master	----	----	0.07228362	----		
GPIT-F Accelero Y Model[0,1]		Master	----	----	-0.0006514929	----		
GPIT-F Accelero Y Model[1,0]		Master	----	----	-0.0005498968	----		
GPIT-F Accelero Y Model[1,1]		Master	----	----	1.107163E-07	----		
GPIT-F Accelero Y Model[2,0]		Master	----	----	-1.927559E-06	----		
GPIT-F Accelero Y Model[2,1]		Master	----	----	-8.138377E-10	----		
GPIT-F Accelero Y Model[3,0]		Master	----	----	1.978751E-08	----		
GPIT-F Accelero Y Model[3,1]		Master	----	----	3.929277E-12	----		
GPIT-F Accelero Z Model[0,0]		Master	----	----	-0.01067738	----		
GPIT-F Accelero Z Model[0,1]		Master	----	----	0.0006739551	----		
GPIT-F Accelero Z Model[1,0]		Master	----	----	6.915399E-05	----		
GPIT-F Accelero Z Model[1,1]		Master	----	----	-1.262902E-07	----		
GPIT-F Accelero Z Model[2,0]		Master	----	----	5.64932E-06	----		
GPIT-F Accelero Z Model[2,1]		Master	----	----	9.010466E-10	----		
GPIT-F Accelero Z Model[3,0]		Master	----	----	-3.255974E-08	----		
GPIT-F Accelero Z Model[3,1]		Master	----	----	-4.406018E-12	----		

GPIT-F Accelerometers Master Calibration - Perpendicular Correction for Accelerometers

Master (EEPROM): 00:00:00 19-Jun-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
GPIT-F Accelero Axis Model[0,0]		Master	----	----	5.085595E-05	----		
GPIT-F Accelero Axis Model[0,1]		Master	----	----	0.001241708	----		
GPIT-F Accelero Axis Model[0,2]		Master	----	----	0.0009800252	----		
GPIT-F Accelero Axis Model[0,3]		Master	----	----	0.0004625961	----		
GPIT-F Accelero Axis Model[0,4]		Master	----	----	0.0003378145	----		
GPIT-F Accelero Axis Model[0,5]		Master	----	----	-0.0009081139	----		
GPIT-F Accelero Axis Model[0,6]		Master	----	----	0	----		
GPIT-F Accelero Axis Model[1,0]		Master	----	----	-3.678655E-06	----		
GPIT-F Accelero Axis Model[1,1]		Master	----	----	-5.292243E-06	----		
GPIT-F Accelero Axis Model[1,2]		Master	----	----	3.909096E-06	----		
GPIT-F Accelero Axis Model[1,3]		Master	----	----	-5.013789E-07	----		
GPIT-F Accelero Axis Model[1,4]		Master	----	----	2.507167E-06	----		
GPIT-F Accelero Axis Model[1,5]		Master	----	----	3.410125E-08	----		
GPIT-F Accelero Axis Model[1,6]		Master	----	----	0	----		

GPIT-F Magnetometers Master Calibration - Signals and Temperature Correction for Magnetometer

Master (EEPROM): 00:00:00 19-Jun-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
GPIT-F Magneto X Model[0,0]		Master	----	----	-31.1098	----		
GPIT-F Magneto X Model[0,1]		Master	----	----	4.856874	----		
GPIT-F Magneto X Model[1,0]		Master	----	----	1.197901	----		
GPIT-F Magneto X Model[1,1]		Master	----	----	-0.0007243812	----		
GPIT-F Magneto X Model[2,0]		Master	----	----	-0.02289894	----		
GPIT-F Magneto X Model[2,1]		Master	----	----	7.895088E-06	----		
GPIT-F Magneto X Model[3,0]		Master	----	----	7.549178E-05	----		
GPIT-F Magneto X Model[3,1]		Master	----	----	-2.696988E-08	----		
GPIT-F Magneto Y Model[0,0]		Master	----	----	2.438538	----		
GPIT-F Magneto Y Model[0,1]		Master	----	----	-4.937112	----		
GPIT-F Magneto Y Model[1,0]		Master	----	----	-0.9105278	----		
GPIT-F Magneto Y Model[1,1]		Master	----	----	0.0007083641	----		
GPIT-F Magneto Y Model[2,0]		Master	----	----	0.02503626	----		

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
GPIT-F Electronic Coeff 4[0,0]		Master	----	----	-0.2674658	----		
GPIT-F Electronic Coeff 4[0,1]		Master	----	----	0.1280473	----		
GPIT-F Electronic Coeff 4[1,0]		Master	----	----	0.01725486	----		
GPIT-F Electronic Coeff 4[1,1]		Master	----	----	5.684287E-06	----		
GPIT-F Electronic Coeff 4[2,0]		Master	----	----	-0.0003270414	----		
GPIT-F Electronic Coeff 4[2,1]		Master	----	----	-1.234254E-07	----		
GPIT-F Electronic Coeff 4[3,0]		Master	----	----	3.012456E-06	----		
GPIT-F Electronic Coeff 4[3,1]		Master	----	----	1.109309E-09	----		
GPIT-F Electronic Coeff 4[4,0]		Master	----	----	-9.028273E-09	----		
GPIT-F Electronic Coeff 4[4,1]		Master	----	----	-3.481511E-12	----		
GPIT-F Electronic Coeff 5[0,0]		Master	----	----	-0.2674658	----		
GPIT-F Electronic Coeff 5[0,1]		Master	----	----	0.1280473	----		
GPIT-F Electronic Coeff 5[1,0]		Master	----	----	0.01725486	----		
GPIT-F Electronic Coeff 5[1,1]		Master	----	----	5.684287E-06	----		
GPIT-F Electronic Coeff 5[2,0]		Master	----	----	-0.0003270414	----		
GPIT-F Electronic Coeff 5[2,1]		Master	----	----	-1.234254E-07	----		
GPIT-F Electronic Coeff 5[3,0]		Master	----	----	3.012456E-06	----		
GPIT-F Electronic Coeff 5[3,1]		Master	----	----	1.109309E-09	----		
GPIT-F Electronic Coeff 5[4,0]		Master	----	----	-9.028273E-09	----		
GPIT-F Electronic Coeff 5[4,1]		Master	----	----	-3.481511E-12	----		
GPIT-F Electronic Coeff 6[0,0]		Master	----	----	-0.2674658	----		
GPIT-F Electronic Coeff 6[0,1]		Master	----	----	0.1280473	----		
GPIT-F Electronic Coeff 6[1,0]		Master	----	----	0.01725486	----		
GPIT-F Electronic Coeff 6[1,1]		Master	----	----	5.684287E-06	----		
GPIT-F Electronic Coeff 6[2,0]		Master	----	----	-0.0003270414	----		
GPIT-F Electronic Coeff 6[2,1]		Master	----	----	-1.234254E-07	----		
GPIT-F Electronic Coeff 6[3,0]		Master	----	----	3.012456E-06	----		
GPIT-F Electronic Coeff 6[3,1]		Master	----	----	1.109309E-09	----		
GPIT-F Electronic Coeff 6[4,0]		Master	----	----	-9.028273E-09	----		
GPIT-F Electronic Coeff 6[4,1]		Master	----	----	-3.481511E-12	----		

PPC-B (Powered Positioning device and Caliper.) Calibration - Run 1			
Primary Equipment :			
PPC-B Element is used for usual logging at wellsite and check/diagnostics.	PPC-B	8437	
Auxiliary Equipment :			
PPC-B Element is used for usual logging at wellsite and check/diagnostics.	PPC-B	8437	
Calibration Parameter :			
ZERO_REF (Small Size Ring)	3.500		
PLUS_REF (Large Size Ring)	8.000		
Equipment Properties :			
Caliper Arm Equipment Type for PPC	PPC_CAL_STD		

PPC Check - Downhole Electronics Test							
Before (Measured):		19:19:35 23-Dec-2012					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Positive Analog Voltage	V	Before		7	8.69707	9	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Minus Analog Voltage	V	Before		-9	-8.71084	-7	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Digital Voltage	V	Before		3.15	3.37646	3.45	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Digital Voltage for Analog Digital Converter	V	Before		4.5	5.01211	5.5	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
Status Word of Analog Digital Converter Offset		Before		-8	0.944444	8	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

PPC Check - Cartridge Temperature Test							
Before (Measured):		19:19:35 23-Dec-2012					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Cartridge Temperature	degF	Before		-58	58.3964	482	

PPC Check - Power Control LVDT Test								
Before (Measured):		19:19:35 23-Dec-2012						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
LVDT5 Caliper Open Position	in	Before			-1.30066			
LVDT5 Full Power Position	in	Before			1.45898			

PPC Diagnostics - Arm Close Position Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Caliper-arm 1, radius raw - 0	in	Master	----	----	----	----	
Caliper-arm 2, radius raw - 0	in	Master	----	----	----	----	
Caliper-arm 3, radius raw - 0	in	Master	----	----	----	----	
Caliper-arm 4, radius raw - 0	in	Master	----	----	----	----	
Power Control LVDT - 0	in	Master	----	----	----	----	
LVDT excitation - 0	V	Master	----	----	----	----	

PPC Diagnostics - Downhole Electronics Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Positive Analog Voltage - 0	V	Master	----	----	----	----	
Minus Analog Voltage - 0	V	Master	----	----	----	----	
Digital Voltage - 0	V	Master	----	----	----	----	
Digital Voltage for Analog Digital Converter - 0	V	Master	----	----	----	----	
Status Word of Analog Digital Converter Offset - 0		Master	----	----	----	----	

PPC Diagnostics - RBS Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Relative Bearing - 0	deg	Master	----	----	----	----	
Potentiometer Excitation - 0	V	Master	----	----	----	----	

PPC Diagnostics - Cartridge Temperature Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Cartridge Temperature - 0	degF	Master	----	----	----	----	

PPC Diagnostics - Power Control LVDT Test

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
LVDT5 Caliper Open Position - 0	in	Master	----	----	----	----	
LVDT5 Full Power Position - 0	in	Master	----	----	----	----	

PPC LVDT5 Master Calibration - PPC CaliCoefficients

Master (EEPROM):		18:49:00 20-Dec-2012					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CCS	in	Master	-1.51		-1.49658		
COP	in	Master	-1.31		-1.30066		
CPW	in	Master	1.41		1.45898		

PPC Caliper Calibration - PPC CaliCoefficients

Before (EEPROM):		18:49:00 20-Dec-2012		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RD1_GAIN		Before	1	0.85	1.00658	1.15	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RD2_GAIN		Before	1	0.85	1.00167	1.15	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RD3_GAIN		Before	1	0.85	0.985062	1.15	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RD4_GAIN		Before	1	0.85	0.998284	1.15	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RD1_OFFSET	in	Before	0	-2.2	-0.886482	2.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RD2_OFFSET	in	Before	0	-2.2	-0.0512222	2.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RD3_OFFSET	in	Before	0	-2.2	-0.610859	2.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
RD4_OFFSET	in	Before	0	-2.2	0.0032102	2.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	

RD4_OFF SET	in	Before	0	-2.2	0.0932192	2.0	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

PPC Caliper Calibration - PPC Accumulations

Before (EEPROM):		18:49:00 20-Dec-2012		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Caliper 1 Zero Radius	in	Before	3.5	1.2	4.35782	5.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 2 Zero Radius	in	Before	3.5	1.2	3.54529	5.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 3 Zero Radius	in	Before	3.5	1.2	4.1732	5.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 4 Zero Radius	in	Before	3.5	1.2	3.41264	5.6	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 1 Plus Radius	in	Before	8	6.1	8.82841	9.7	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 2 Plus Radius	in	Before	8	6.1	8.03778	9.7	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 3 Plus Radius	in	Before	8	6.1	8.74144	9.7	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	
Caliper 4 Plus Radius	in	Before	8	6.1	7.92037	9.7	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

MAST-B (Multimode Array Sonic Service Tool) Calibration - Run 1

Primary Equipment :			
MAMS-BA Multimode Array Sonic Minimum Service Sonde		MAMS-BA	8053

MAST Master Characterization Coefficients - Characterization Coefficients Summary

Master (EEPROM):		11:43:00 18-Sep-2012 Expired by 8 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sensor Sensitivity Correction Factor Minimum		Master	1.000	0.500	0.937	1.700	
Sensor Sensitivity Correction Factor Maximum		Master	1.000	0.500	1.075	1.700	
Sensor Time Delay Factor Minimum	us	Master	0	-2.000	-0.608	2.000	
Sensor Time Delay Factor Maximum	us	Master	0	-2.000	0.495	2.000	
Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio Minimum		Master	1.000	0.900	0.925	1.700	
Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio Maximum		Master	1.000	0.900	1.076	1.700	

Characterization Coefficients

Master (EEPROM):		11:43:00 18-Sep-2012 Expired by 8 days						
CALI_SSCF (Master)		Sensor Sensitivity Correction Factor						
Minimum/Nominal/Maximum		0.500/1.000/1.700					Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0.963	1.037	0.958	0.994	1.021	1.013	0.996	1.028
SO2	0.985	0.950	0.959	0.990	1.011	0.992	1.016	1.005
SO3	1.013	0.969	0.937	1.000	1.009	0.952	1.006	1.023
SO4	1.058	0.961	1.039	1.003	1.035	0.970	0.997	1.012
SO5	0.997	0.970	0.992	0.973	0.968	1.075	1.026	0.989
SO6	1.017	1.035	1.051	1.024	0.960	1.025	1.061	0.994
SO7	1.020	0.967	1.000	0.986	0.966	0.970	0.983	0.993
SO8	0.997	0.992	1.038	1.042	1.003	1.017	0.987	1.004

SO9	1.006	1.019	1.002	1.022	1.018	0.967	0.973	0.994
SO10	1.003	0.979	1.055	1.033	0.980	0.989	1.008	0.988
SO11	0.960	0.994	0.989	1.039	1.037	1.029	0.985	0.995
SO12	1.030	1.073	0.977	1.035	1.026	1.017	1.000	0.963
SO13	0.969	1.026	0.998	1.000	1.032	0.981	0.985	0.990
CALI_STDF (Master) Sensor Time Delay Factor								
Minimum/Nominal/Maximum -2.000/0/2.000							Unit	us
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0.092	-0.020	0.013	-0.174	0.084	0.032	-0.016	-0.013
SO2	-0.183	-0.134	-0.189	0.009	0.104	-0.009	0.057	0.026
SO3	0.132	-0.240	-0.349	-0.054	-0.002	0.002	0.054	0.154
SO4	0.056	-0.041	-0.054	0.039	0.041	0.155	-0.107	-0.101
SO5	-0.047	0.097	-0.029	0.150	0.152	0.131	-0.210	-0.098
SO6	0.033	0.076	0.020	0.151	-0.006	-0.190	-0.209	-0.063
SO7	0.020	0.053	0.124	0.107	0.097	-0.256	-0.281	-0.197
SO8	0.004	0.238	0.159	0.335	0.018	-0.200	-0.608	-0.353
SO9	0.069	0.213	0.264	0.369	-0.069	-0.193	-0.465	-0.186
SO10	-0.075	0.120	0.303	0.393	0.134	-0.321	-0.604	-0.320
SO11	-0.381	0.123	0.265	0.460	0.263	-0.123	-0.533	-0.516
SO12	-0.075	0.075	0.145	0.495	0.103	-0.281	-0.517	-0.548
SO13	-0.405	-0.012	0.012	0.447	0.437	0.085	-0.318	-0.435
CALI_SSCR (Master) Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio								
Minimum/Nominal/Maximum 0.900/1.000/1.700							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	1.076	1.021	0.984	0.977	0.984	0.995	1.002	1.058
SO2	1.049	1.009	0.975	0.956	0.964	0.987	1.018	1.048
SO3	1.024	0.969	0.940	0.925	0.927	0.955	0.980	1.017
SO4	1.031	1.005	0.968	0.957	0.983	0.991	1.008	1.023
SO5	1.047	0.978	0.985	0.983	0.979	0.983	1.017	1.035
SO6	1.022	0.984	0.986	1.014	0.997	0.974	1.017	1.026
SO7	0.989	0.974	0.994	0.989	0.993	0.994	1.011	1.019
SO8	1.007	0.990	1.001	1.016	1.008	1.003	0.989	0.999
SO9	0.984	0.990	1.007	1.019	1.007	0.998	0.989	0.989
SO10	0.993	0.991	1.021	1.042	1.034	1.022	0.995	0.987
SO11	0.991	1.009	1.023	1.033	1.032	1.025	1.004	0.979
SO12	0.991	0.998	1.006	1.010	0.999	1.002	0.983	0.969
SO13	0.979	0.992	1.014	1.027	1.027	1.020	0.987	0.970
CALI_SSCTF (Master) Sensor Sensitivity Correction Transmitter Failure Flag								
Minimum/Nominal/Maximum 0/0/0							Unit	
Monopole Upper Transmitter					0			
Monopole Lower Transmitter					0			
CALI_SSCHF (Master) Sensor Sensitivity Correction High Frequency Diagnostic Failure Flag								
Minimum/Nominal/Maximum 0/0/0							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0	0	0	0	0	0	0	0
SO2	0	0	0	0	0	0	0	0
SO3	0	0	0	0	0	0	0	0
SO4	0	0	0	0	0	0	0	0

SO5	0	0	0	0	0	0	0	0
SO6	0	0	0	0	0	0	0	0
SO7	0	0	0	0	0	0	0	0
SO8	0	0	0	0	0	0	0	0
SO9	0	0	0	0	0	0	0	0
SO10	0	0	0	0	0	0	0	0
SO11	0	0	0	0	0	0	0	0
SO12	0	0	0	0	0	0	0	0
SO13	0	0	0	0	0	0	0	0

CALI_SSCLF (Master)		Sensor Sensitivity Correction Low Frequency Diagnostic Failure Flag						
Minimum/Nominal/Maximum		0/0/0						Unit
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0	0	0	0	0	0	0	0
SO2	0	0	0	0	0	0	0	0
SO3	0	0	0	0	0	0	0	0
SO4	0	0	0	0	0	0	0	0
SO5	0	0	0	0	0	0	0	0
SO6	0	0	0	0	0	0	0	0
SO7	0	0	0	0	0	0	0	0
SO8	0	0	0	0	0	0	0	0
SO9	0	0	0	0	0	0	0	0
SO10	0	0	0	0	0	0	0	0
SO11	0	0	0	0	0	0	0	0
SO12	0	0	0	0	0	0	0	0
SO13	0	0	0	0	0	0	0	0

CALI_SSCHA (Master)		Sensor Sensitivity Correction High Frequency Normalized Amplitudes						
Minimum/Nominal/Maximum		----/1.000/----						Unit
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	1.043	0.969	1.049	1.010	0.984	0.992	1.008	0.977
SO2	1.007	1.043	1.033	1.001	0.980	0.999	0.976	0.986
SO3	0.990	1.035	1.071	1.003	0.994	1.054	0.997	0.980
SO4	0.952	1.048	0.969	1.004	0.973	1.038	1.010	0.996
SO5	0.993	1.021	0.998	1.019	1.023	0.921	0.965	1.002
SO6	1.009	0.992	0.976	1.003	1.069	1.002	0.967	1.032
SO7	0.965	1.018	0.984	0.998	1.019	1.015	1.002	0.992
SO8	1.007	1.012	0.967	0.963	1.001	0.986	1.017	0.999
SO9	0.998	0.986	1.002	0.982	0.987	1.038	1.032	1.010
SO10	0.994	1.018	0.944	0.964	1.017	1.007	0.988	1.008
SO11	1.036	1.000	1.005	0.957	0.959	0.967	1.010	1.000
SO12	0.992	0.952	1.045	0.987	0.996	1.004	1.021	1.060
SO13	1.026	0.969	0.996	0.994	0.964	1.013	1.009	1.004

CALI_SSCLA (Master)		Sensor Sensitivity Correction Low Frequency Normalized Amplitudes						
Minimum/Nominal/Maximum		----/1.000/----						Unit
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	1.122	0.990	1.032	0.987	0.968	0.987	1.010	1.033
SO2	1.056	1.053	1.007	0.957	0.944	0.986	0.993	1.033
SO3	1.014	1.003	1.006	0.928	0.922	1.007	0.977	0.997
SO4	0.982	1.054	0.938	0.961	0.957	1.029	1.018	1.018

SO5	1.040	0.999	0.984	1.002	1.001	0.906	0.982	1.037
SO6	1.032	0.975	0.962	1.017	1.066	0.976	0.983	1.059
SO7	0.955	0.991	0.978	0.988	1.012	1.009	1.012	1.010
SO8	1.014	1.001	0.968	0.979	1.008	0.989	1.005	0.999
SO9	0.982	0.976	1.009	1.001	0.994	1.037	1.021	0.999
SO10	0.987	1.009	0.964	1.005	1.051	1.030	0.983	0.995
SO11	1.027	1.009	1.028	0.989	0.990	0.991	1.014	0.979
SO12	0.983	0.950	1.051	0.997	0.995	1.006	1.003	1.027
SO13	1.004	0.961	1.009	1.021	0.990	1.034	0.996	0.974

CALI_SSTRS (Master)		Sensor Sensitivity Correction Transmitter-Receiver Spacing						
Minimum/Nominal/Maximum							Unit	ft
-----/4.000/-----								
Monopole Upper Transmitter					2.000			
Monopole Lower Transmitter					2.000			

CALI_TTMUH (Master)		Sensor Sensitivity Transit Time from Monopole Upper Transmitter High Frequency Firing						
Minimum/Nominal/Maximum							Unit	us
0/0/5000.000								
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	503.099	503.211	503.178	503.365	503.107	503.159	503.207	503.205
SO2	474.276	474.227	474.282	474.085	473.989	474.102	474.037	474.068
SO3	444.980	445.351	445.461	445.166	445.113	445.110	445.058	444.957
SO4	416.092	416.221	416.221	416.092	416.075	415.964	416.205	416.281
SO5	387.096	386.928	387.061	386.674	386.684	386.860	387.234	387.121
SO6	357.860	357.854	357.898	357.770	357.970	358.308	358.246	358.049
SO7	328.822	328.759	328.739	328.851	328.877	329.205	329.163	329.041
SO8	299.699	299.470	299.524	299.537	299.850	300.022	300.305	300.050
SO9	270.508	270.370	270.372	270.333	270.814	270.925	271.133	270.838
SO10	241.635	241.475	241.346	241.342	241.564	242.023	242.277	241.912
SO11	212.750	212.329	212.406	212.384	212.706	212.929	213.075	212.966
SO12	183.370	183.247	183.303	183.171	183.597	183.956	184.065	183.939
SO13	154.124	153.836	153.878	153.321	153.428	153.645	154.184	154.194

CALI_TTMLH (Master)		Sensor Sensitivity Transit Time from Monopole Lower Transmitter High Frequency Firing						
Minimum/Nominal/Maximum							Unit	us
0/0/5000.000								
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	151.761	151.909	152.046	152.261	151.842	151.900	151.796	151.800
SO2	181.204	181.140	181.258	180.972	180.953	181.011	180.986	181.046
SO3	209.887	210.189	210.374	210.192	210.083	210.050	210.013	209.850
SO4	239.066	239.130	239.156	239.098	239.112	238.996	239.277	239.190
SO5	268.125	268.006	268.125	268.154	268.140	268.004	268.312	268.201
SO6	297.245	297.164	297.232	297.099	297.213	297.241	297.343	297.247
SO7	326.166	326.163	326.041	325.963	325.957	326.335	326.428	326.380
SO8	355.165	354.925	355.029	354.664	354.985	355.249	355.781	355.528
SO9	384.267	384.119	384.013	383.843	384.239	384.375	384.710	384.448
SO10	413.423	413.192	412.955	412.778	413.074	413.525	413.838	413.633
SO11	442.604	442.100	441.958	441.762	441.960	442.346	442.756	442.739
SO12	471.422	471.271	471.202	470.851	471.244	471.628	471.863	471.895
SO13	500.836	500.444	500.420	499.985	499.995	500.347	500.749	500.866

CALI_AMPMUH (Master)		Sensor Sensitivity First Break Amplitude from Monopole Upper Transmitter High Frequency Firing						
Minimum/Nominal/Maximum							Unit	
-50000.000/0/50000.000								
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	5003.683	4649.478	5032.224	4846.807	4718.457	4756.551	4837.229	4686.343
SO2	5133.970	5320.518	5268.567	5106.493	4997.964	5094.279	4977.543	5027.882
SO3	5231.224	5468.925	5658.756	5301.809	5252.812	5571.585	5268.664	5181.654
SO4	5235.056	5782.369	5370.718	5530.510	5351.545	5720.154	5574.017	5499.645
SO5	5776.680	5944.744	5833.476	5923.254	5993.275	5412.546	5687.655	5854.756
SO6	5928.998	5859.154	5782.209	5921.363	6315.204	6083.342	5758.382	6095.241
SO7	6273.672	6649.951	6421.902	6509.824	6691.907	6703.947	6557.476	6456.143
SO8	6772.350	6827.155	6526.807	6494.343	6744.215	6640.408	6851.432	6729.068
SO9	7029.559	6956.757	7034.524	6916.949	7005.134	7374.087	7293.482	7103.859
SO10	7402.149	7567.554	7008.639	7140.756	7502.566	7475.855	7327.290	7504.976
SO11	8208.256	7852.188	7877.211	7423.854	7436.228	7544.341	7829.911	7845.330
SO12	8007.409	7593.668	8082.373	7411.453	7411.306	7583.964	7964.720	8501.357
SO13	8186.393	7578.423	7557.017	7248.455	6853.120	7260.468	7587.822	7858.036

CALI_AMPMLH (Master)		Sensor Sensitivity First Break Amplitude from Monopole Lower Transmitter High Frequency Firing						
Minimum/Nominal/Maximum		-50000.000/0/50000.000						Unit
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	7678.918	7410.999	8011.323	7675.615	7345.332	7384.528	7165.302	7056.882
SO2	7604.399	7873.184	7762.558	7427.249	7277.138	7405.302	7244.358	7382.161
SO3	7105.484	7362.201	7595.894	7205.340	7023.602	7369.107	6946.125	6944.766
SO4	6469.733	7103.938	6534.395	6818.111	6614.212	7044.800	6842.031	6736.469
SO5	6616.091	6798.293	6618.042	6785.199	6767.414	6074.879	6344.757	6639.279
SO6	6219.176	6074.406	5966.637	6143.779	6550.082	5970.526	5881.864	6326.775
SO7	5859.968	6149.748	5947.396	6041.203	6123.279	6061.226	6034.340	6008.817
SO8	5698.332	5706.758	5447.881	5439.248	5650.872	5575.644	5742.523	5647.108
SO9	5396.251	5317.737	5436.546	5315.232	5297.308	5569.736	5560.744	5472.890
SO10	5179.306	5310.085	4938.624	5054.354	5345.146	5264.914	5171.605	5255.217
SO11	5185.350	5004.415	5030.582	4790.524	4800.741	4837.137	5051.256	5002.443
SO12	4619.172	4432.799	4868.526	4595.518	4637.080	4678.136	4755.081	4938.142
SO13	4695.147	4433.402	4555.243	4547.970	4408.956	4637.129	4615.712	4595.777

CALI_AMPML (Master)		Sensor Sensitivity First Break Amplitude from Monopole Upper Transmitter Low Frequency Firing						
Minimum/Nominal/Maximum		-50000.000/0/50000.000						Unit
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	-8066.693	-7084.146	-6986.400	-6398.728	-6504.529	-6793.544	-7336.653	-7324.021
SO2	-8521.252	-8380.275	-7842.305	-7389.420	-7460.288	-7863.761	-8230.052	-8373.200
SO3	-9499.877	-9121.820	-9054.864	-8499.183	-8487.610	-9218.158	-9232.939	-9510.546
SO4	-9939.684	-10345.210	-9298.830	-9493.267	-9529.938	-10270.690	-10403.750	-10551.100
SO5	-11411.140	-11230.790	-10866.530	-11030.060	-11197.290	-10323.540	-11222.500	-11633.280
SO6	-13009.790	-12499.280	-12058.080	-12397.190	-13576.420	-12930.040	-12762.990	-13275.680
SO7	-18373.970	-19072.280	-18821.310	-19000.290	-19475.860	-19405.070	-19475.260	-19436.950
SO8	-18887.990	-18656.710	-18034.280	-18231.640	-18787.490	-18431.880	-18733.080	-18605.510
SO9	-19156.470	-19028.420	-19684.950	-19525.390	-19388.080	-20219.880	-19907.980	-19480.110
SO10	-20173.020	-20620.380	-19698.640	-20538.640	-21490.230	-21045.020	-20090.570	-20340.020
SO11	-22308.700	-21926.010	-22344.540	-21499.210	-21522.270	-21533.520	-22034.090	-21272.660
SO12	-22850.400	-22091.590	-24443.850	-23175.040	-23121.600	-23388.710	-23323.200	-23883.650
SO13	-27270.640	-26099.200	-27409.850	-27718.390	-26872.200	-28066.920	-27035.560	-26444.340

CALI_AMPMLL (Master)		Sensor Sensitivity First Break Amplitude from Monopole Lower Transmitter Low Frequency Firing						
Minimum/Nominal/Maximum		-50000.000/0/50000.000						Unit
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	-26014.820	-22944.210	-23916.870	-22882.110	-22445.330	-22871.530	-23415.060	-23955.600
SO2	-22254.120	-22190.760	-21218.930	-20181.680	-19904.180	-20782.630	-20936.540	-21769.510
SO3	-19270.970	-19059.390	-19127.750	-17633.840	-17519.860	-19138.130	-18565.360	-18956.520
SO4	-16180.190	-17370.090	-15456.230	-15840.570	-15772.110	-16957.960	-16779.110	-16780.100
SO5	-15144.610	-14538.730	-14320.840	-14584.860	-14580.450	-13189.790	-14295.100	-15101.030
SO6	-16205.080	-15322.960	-15116.380	-15969.290	-16747.810	-15335.540	-15449.120	-16634.580
SO7	-11222.280	-11470.440	-11274.920	-11447.570	-12072.880	-11535.860	-11343.260	-11358.330
SO8	-10124.070	-10102.580	-9842.580	-9873.653	-10172.540	-9980.012	-9983.039	-9832.527
SO9	-8548.002	-8781.427	-9499.561	-9217.069	-8989.976	-9456.918	-9169.927	-8698.395
SO10	-7812.716	-8171.925	-8478.735	-8798.044	-8997.303	-8680.142	-8023.831	-8009.563
SO11	-7513.090	-7638.169	-8358.081	-8324.636	-8485.774	-7961.234	-7644.979	-7178.118
SO12	-6585.793	-6622.077	-7728.970	-7683.296	-7802.606	-7551.474	-6926.378	-6812.139
SO13	-6097.694	-5955.509	-6769.972	-7286.296	-7193.263	-7071.616	-6171.844	-5660.305

[illegible]

[illegible]

SO13	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
CALI_SVCLF (After) Sensor Vertical Casing Check Low Frequency Diagnostics Failure Flag (Before/After/BACChange)								
Minimum/Nominal/Maximum 0/0/0							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO2	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO3	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO4	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO5	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO6	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO7	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO8	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO9	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO10	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO11	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO12	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO13	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE

EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run 1

Primary Equipment :

Enhanced Digital Telemetry Cartridge - B

EDTC-B

Calibration Parameter :

Plus Reference (Jig minus background reference)

165

EDTC-B Accelerometer Calibration - EDTC-B Accelerometer Calibration

Before (Measured): 20:25:00 25-Dec-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.19	31.53	32.05	32.84	

EDTC-B Memory Data - EDTC-B Memory Data

Master (EEPROM): 22:36:47 25-Dec-2012

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Initial PMT HV	V	Master			1686.000		
Accelerometer Serial Number		Master			659		
Accelerometer Coefficients - 0		Master	----	----	2.925	----	
Accelerometer Coefficients - 1		Master	----	----	0.000	----	
Accelerometer Coefficients - 2		Master	----	----	0.000	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	0.000	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	-0.005	----	
Accelerometer Coefficients - 8		Master	----	----	0.000	----	
Accelerometer Coefficients - 9		Master	----	----	0.000	----	
Accelerometer Coefficients - 10		Master	----	----	0.000	----	
Accelerometer Coefficients - 11		Master	----	----	0.000	----	
Gamma-Ray Detector Serial Number		Master			7756		

EDTC-B Gamma-Ray Calibration - Gamma Ray Coefficients

Before (Measured): 19:22:22 23-Dec-2012

After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Gain		Before	1.000	0.900	1.016	1.100	
		After	----	----	----	----	
		After-Before	----	----	----	----	

EDTC-B Gamma-Ray Calibration - Gamma Ray Accumulations

Before (Measured): 19:22:22 23-Dec-2012

After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before After After-Before	----- ----- -----	0 ----- -----	77.898 ----- -----	120.000 ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>
RGR Plus Measurement	gAPI	Before After After-Before	165.000 ----- -----	150.000 ----- -----	162.365 NOT DONE -----	180.000 ----- -----	<div><div></div><div></div><div></div><div></div><div></div></div>

LEH-QT (Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor) Calibration - Run 1

Primary Equipment :							
Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor				LEH-QT			

HTEN Master Calibration - HTEN Master Calibration

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HTEN Shop Gain		Master	1.000	0.800	NOT DONE	4.500	<div><div></div><div></div><div></div><div></div><div></div></div>
HTEN Shop Offset	lbf	Master	0	-1000.000	NOT DONE	1000.000	<div><div></div><div></div><div></div><div></div><div></div></div>

HTEN Before Calibration - HTEN Before Calibration

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RHTE Zero Measurement - 0	lbf	Before	-----	-----	-----	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
RHTE Plus Measurement - 0	lbf	Before	-----	-----	-----	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
HTEN Gain - 0		Before	-----	-----	-----	-----	<div><div></div><div></div><div></div><div></div><div></div></div>
HTEN Offset - 0	lbf	Before	-----	-----	-----	-----	<div><div></div><div></div><div></div><div></div><div></div></div>

Company:	Conoco Phillips Company	Schlumberger
Well:	State of Colorado 36-1M	
Field:	Wildcat	
County:	Adams	
State:	Colorado	

HNGS
Hostile Natural Gamma ray Spectro