Schlumberger

Company: **BP EXPLORATION (ALASKA), INC.**

Well: **MT. ELBERT–01** **FINAL**
Field: **MILNE POINT UNIT**
Borough: **NORTH SLOPE** State: **ALASKA**

Borough: NORTH SLOPE
Field: MILNE POINT UNIT
Location: 1242' FNL & 4183' FEL
Well: MT. ELBERT–01
Company: BP EXPLORATION (ALASKA), INC.

HOSTILE ENVIRONMENTAL NATURAL GAMMA RAY SONDE

HNGS LOG

14–FEB–2007

LOCATION

1242' FNL & 4183' FEL
AT SURFACE

Elev.: K.B. 54.8 ft
G.L. 21.4 ft
D.F. 54.8 ft

Permanent Datum: MEAN SEA LEVEL Elev.: 0 ft
Log Measured From: KELLY BUSHING 54.8 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
50–029–23302–00	30	13N	11E

Logging Date			14–Feb–2007					Logging Date
Run Number			THREE					Run Number
Depth Driller			3000 ft					Depth Driller
Schlumberger Depth			2996 ft					Schlumberger Depth
Bottom Log Interval			2954 ft					Bottom Log Interval
Top Log Interval			1952 ft					Top Log Interval
Casing Driller Size @ Depth			9.625 in @ 1954 ft			@		Casing Driller Size @ Depth
Casing Schlumberger			1952 ft					Casing Schlumberger
Bit Size			8.750 in					Bit Size
Type Fluid In Hole			OIL BASED MUD					Type Fluid In Hole
MUD	Density	Viscosity	9.4 lbm/gal	79 s				MUD Density / Viscosity
MUD	Fluid Loss	PH						MUD Fluid Loss / PH
MUD	Source Of Sample		NA					MUD Source Of Sample
RM @ Measured Temperature			@			@		RM @ Measured Temperature
RMF @ Measured Temperature			@			@		RMF @ Measured Temperature
RMC @ Measured Temperature			@			@		RMC @ Measured Temperature
Source RMF	RMC		NA	NA				Source RMF / RMC
RM @ MRT	RMF @ MRT		@ 38	@ 38	@	@		RM @ MRT / RMF @ MRT
Maximum Recorded Temperatures			38 degF					Maximum Recorded Temperatures
Circulation Stopped	Time		13–Feb–2007	15:30				Circulation Stopped / Time
Logger On Bottom	Time		15–Feb–2007	8:00				Logger On Bottom / Time
Unit Number	Location		2266	PRUDHOE BAY				Unit Number / Location
Recorded By			B.PHILPOTT					Recorded By
Witnessed By			TIM COLLET					Witnessed By

DEPTH SUMMARY LISTING

Date Created: 15–FEB–2007 17:17:07

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW–JA	Type:	CMTD–B/A	Type:	7–46P–XS
Serial Number:	2656	Serial Number:	2699	Serial Number:	3001
Calibration Date:	13–JAN–2007	Calibration Date:	12–JAN–2007	Length:	14200.00 FT
Calibrator Serial Number:	18	Calibrator Serial Number:	265	Conveyance Method:	Wireline
Calibration Cable Type:	7–46P–XS	Calibration Gain:	0.92	Rig Type:	LAND
Wheel Correction 1:	–6	Calibration Offset:	539.00		
Wheel Correction 2:	–2				

Depth Control Parameters

Log Sequence: First Log In the Well

Rig Up Length At Surface:
Rig Up Length At Bottom:
Rig Up Length Correction:
Stretch Correction:
Tool Zero Check At Surface:

Depth Control Remarks

1. PRIMARY DEPTH CONTROL USED
2.
3.
4.
5.
6.

DISCLAIMER
THE USE OF AND RELIANCE UPON THIS RECORDED–DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED–DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED–DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED–DATA.

OTHER SERVICES1		OTHER SERVICES2
OS1:	RT SCANNER, TLD,	OS1:
OS2:	HGNS, EPT, DSI, PPC	OS2:
OS3:	OBMI, ECS, CMR,	OS3:
OS4:	MDT	OS4:
OS5:		OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2

RT SANNER RAN IN COMPUTE OBM STANDOFF, WITH TWO 1.5" STANDOFFS.
RT SCANNER LOGGED IN 3_BholeCorr_BasicLogs_RadialProcessing Mode.
TRIPLE LITHODENSITY TOOL LOGGED IN VERY HIGH RESOLUTION.
COMPENSATED NEUTRON TOOL, ELECTROMAGNETIC PROPAGTION TOOL, ELEMENTAL CAPTURE SPECTROSCOPY SONDE,
AND COMBINABLE MAGNETIC RESONANCE TOOL RAN WITH 180 DEG BOWSPRINGS FOR ECCENTRALIZATION.
DIPOLE SONIC TOOL LOGGED IN ANISOTROPY, P & S , UPPER DIPOLE AND LOWER DIPOLE MODES.
RAN WITH 2 POWERED POSITIONING CALIPERS FOR CENTRALIZATION
COMBINABLE MAGNETIC RESONANCE TOOL LOGGING MODE: OIL BASED MUD DEPTH LOG– B MODE
ECHO SPACING: 200 US, NUMBER OF ECHOES: 600, T2 CUTOFF: 33 MSEC
MODULAR DYNAMIC TESTER RAN WITH TWO PACKERS, SIX 450 CC'S SAMPLE CHAMBERS, ONE GL SAMPLE CHAMBER AND
ONE 1 GL CHAMBER WITH TANNER GAS TO PREVENT FLOW LINE FREEZING.
MDT SAMPLES WERE TAKEN AT 2012', 2025', 2036', 2047', 2151' AND 2061'. UNABLE TO RETRIEVE SAMPLES AT
2032', AND 2039' DUE TO LOST SEALS.
MDT TOTAL PUMPED OUT TIME: 865 MINS.
AFE# GS 2420H33
RIG: DOYON 14
CREW: J.CAPEN, D.COLE, D.WEATHERS, T.RAUBINGER

RUN 1		RUN 2	
SERVICE ORDER #:	11638614	SERVICE ORDER #:	
PROGRAM VERSION:	14C0–302	PROGRAM VERSION:	
FLUID LEVEL:		FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

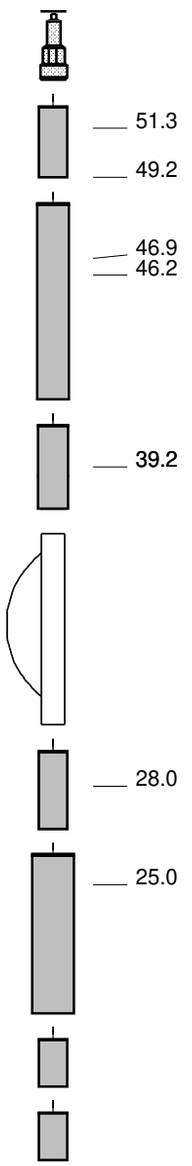
EQUIPMENT DESCRIPTION

RUN 1 | RUN 2

SURFACE EQUIPMENT

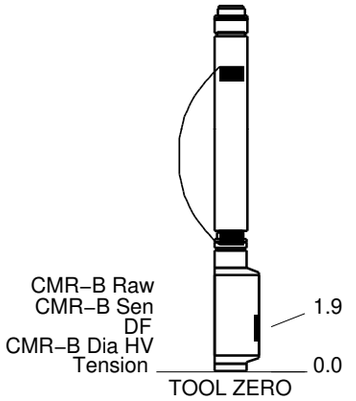
GSR–U 1902
WITM (DTS)–A

DOWNHOLE EQUIPMENT



CMRT−B
CMRC−BA 81
CMRS−BA 85
EME−F

15.6



MAXIMUM STRING DIAMETER 6.60 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

	(in) OD	(in) ID	(ft) MD	MT ELBERT	(ft) MD	(in) OD	(in) ID	
					0.0	9.625		Casing String
					1954.0	9.625		Casing Shoe
					1954.0	8.750		Borehole Segment

Schlumberger

MAIN PASS – RATIOS

MAXIS Field Log

Company: BP Alaska Drilling and Wells | **Well: MT ELBERT**

Input DLIS Files

DEFAULT	CMR_ECS_NGS_064LUP	FN:77	PRODUCER	15–Feb–2007 07:59	2992.5 FT	1903.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_073PUP	FN:86	PRODUCER	15–Feb–2007 14:16	2993.5 FT	1920.5 FT

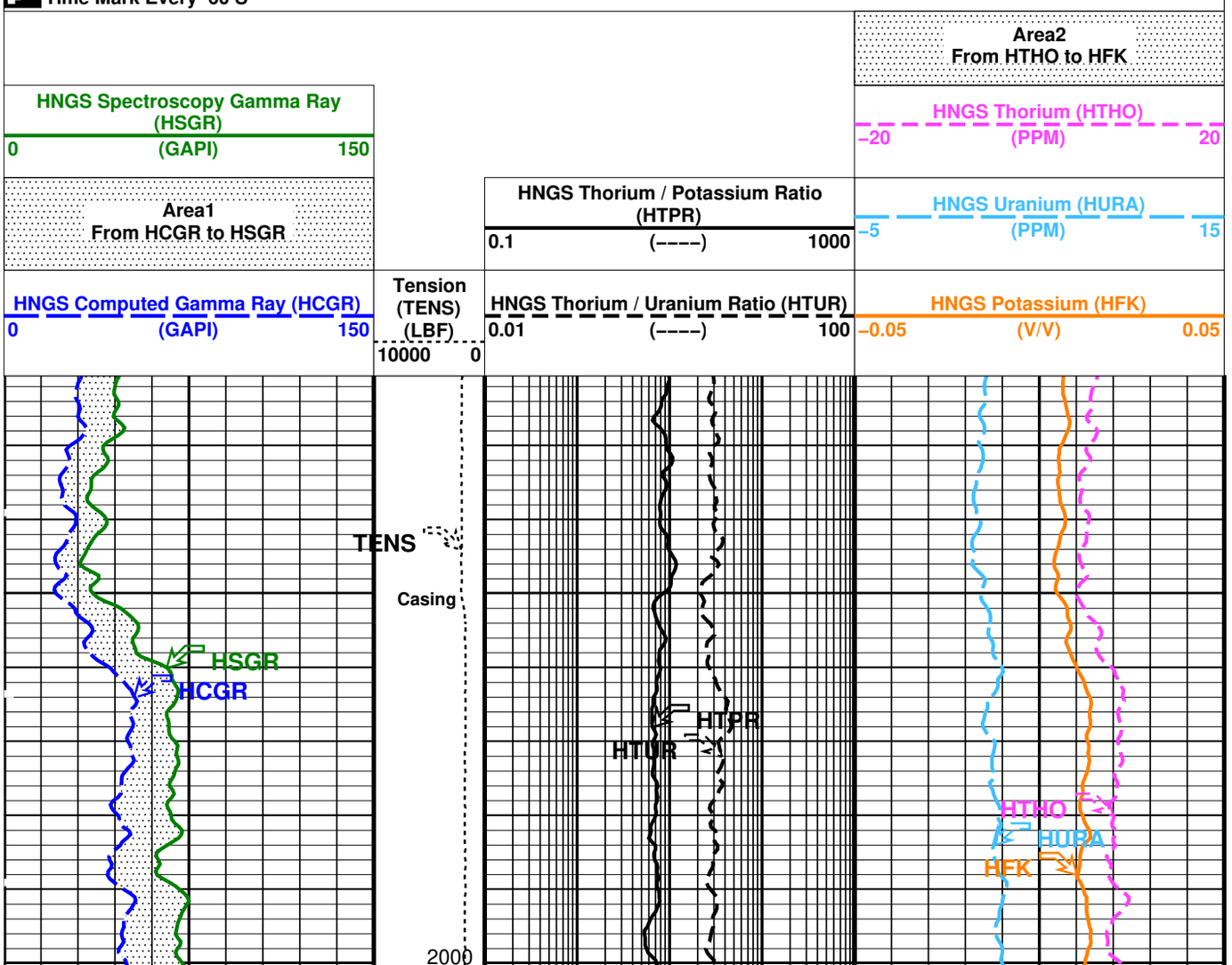
OP System Version: 14C0–302

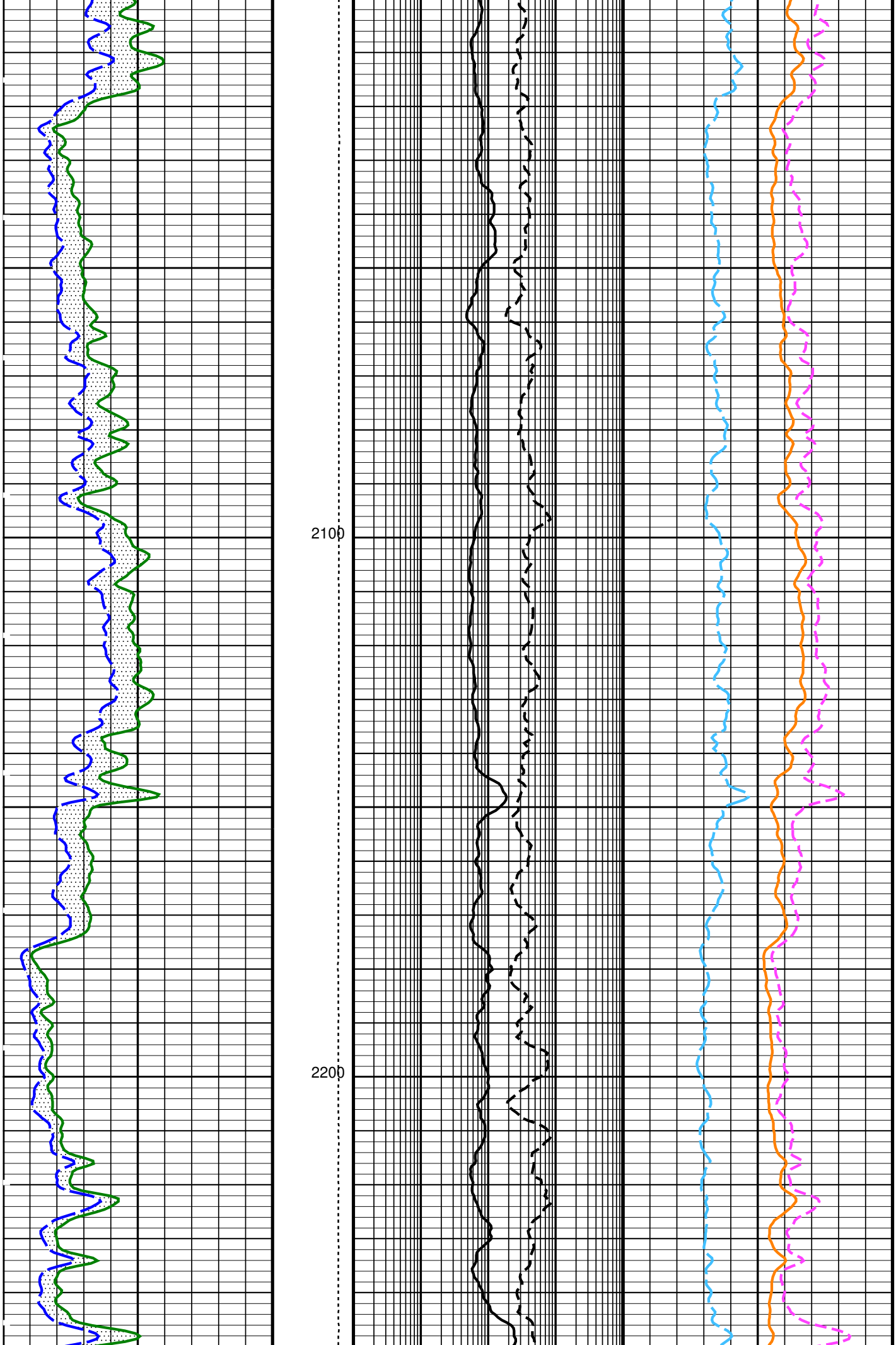
MCM

CMRT–B	SPC–3131–CMR_b	ECS–A	SPC–3316–NUCL_b
ECC–A	SPC–3316–NUCL_b	HNGC–B	SPC–3316–NUCL_b
HNGS–BA	SPC–3316–NUCL_b	DTC–H	14C0–302

PIP SUMMARY

Time Mark Every 60 S

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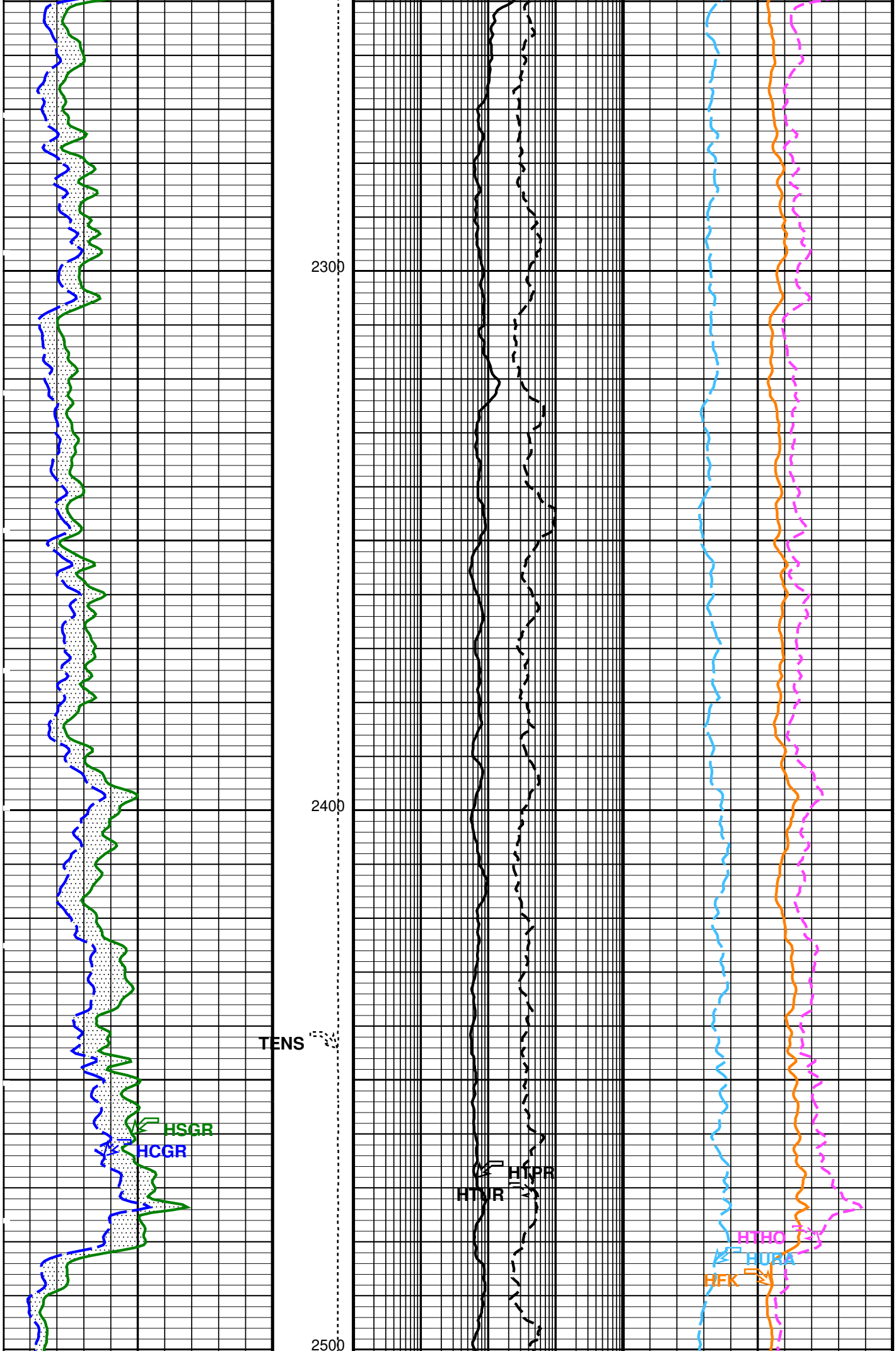
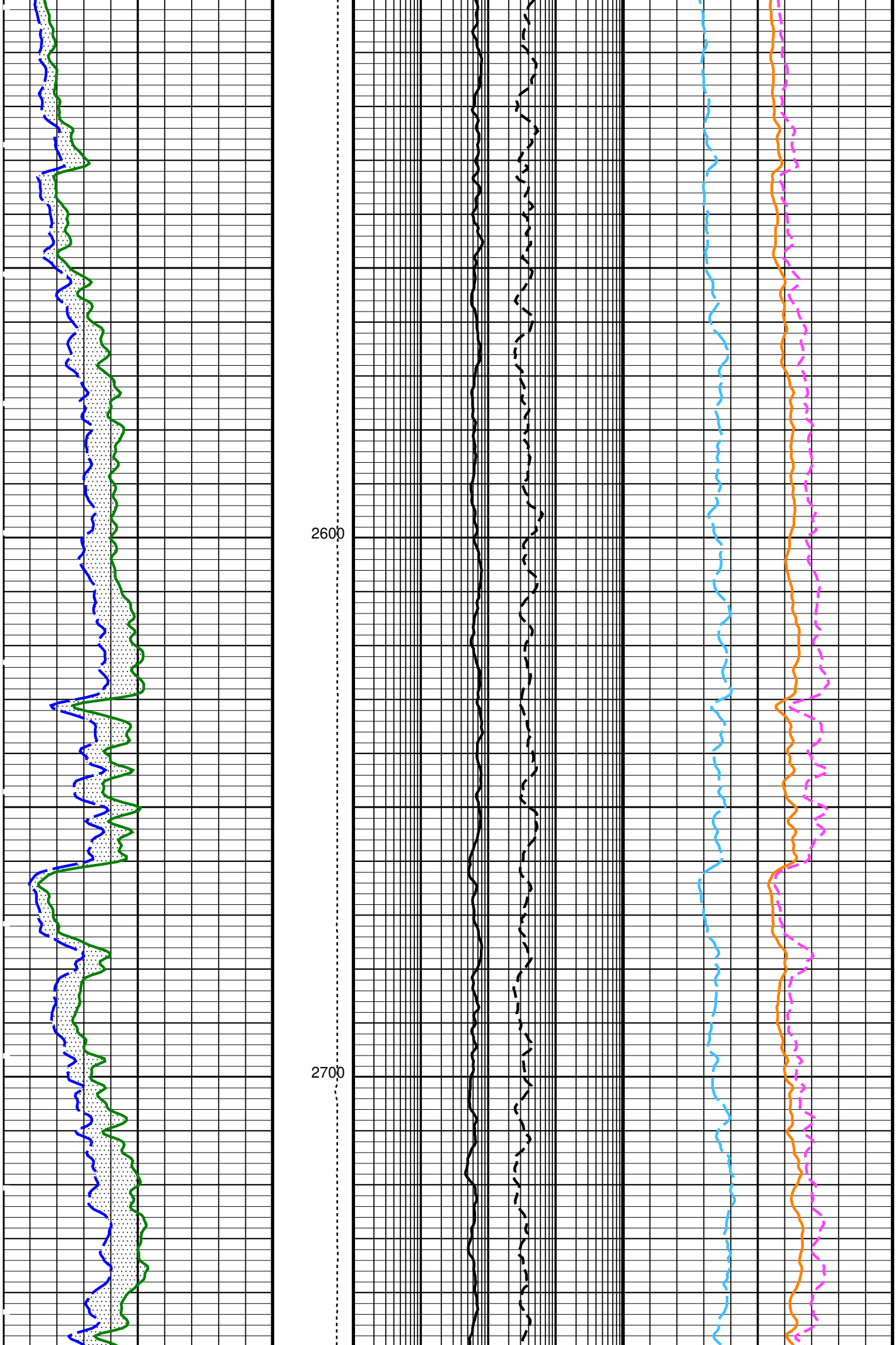
2200


2300
2400
TENS
2500
HSGR
HCGR
HTPR
HTNR
HTHO
HURA
HFK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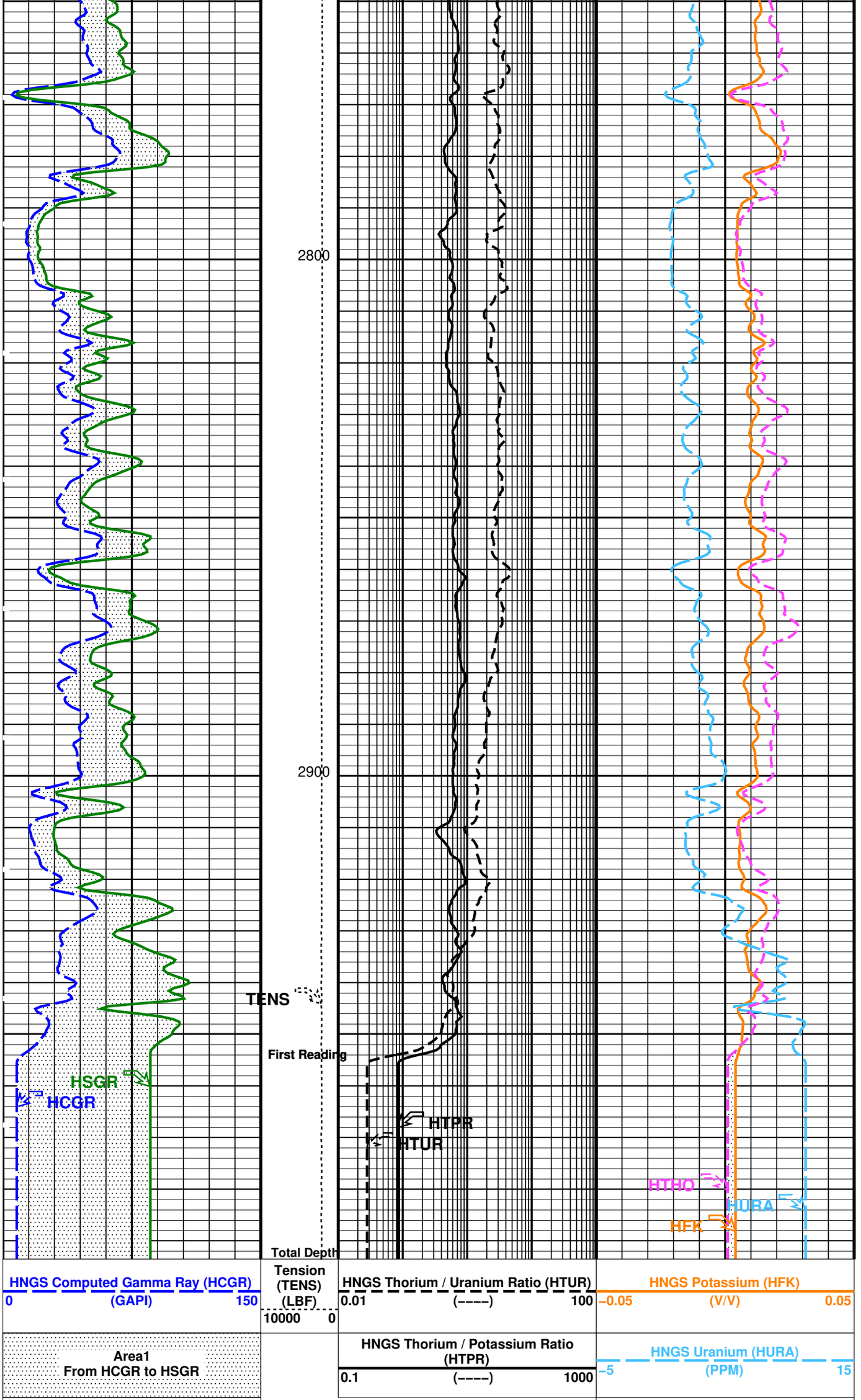
2700


2800
2900
TENS
First Reading
HSGR
HCGR
HTPR
HTUR
HTHO
HURA
HFK
Total Depth
HNGS Computed Gamma Ray (HCGR)
0
(GAPI)
150
Tension
(TENS)
(LBF)
10000
0
HNGS Thorium / Uranium Ratio (HTUR)
0.01
(----)
100
HNGS Potassium (HFK)
-0.05
(V/V)
0.05
Area1
From HCGR to HSGR
HNGS Thorium / Potassium Ratio
(HTPR)
0.1
(----)
1000
HNGS Uranium (HURA)
-5
(PPM)
15

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 150

HNGS Thorium (HTHO)
-20 (PPM) 20

Area2
From HTHO to HFK

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	CMRT-B: Combinable Magnetic Resonance Tool - B		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
	HNGS-BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	0	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
DFD	Drilling Fluid Density	9.40	LB/G
DO	Depth Offset for Playback	1.0	FT
PP	Playback Processing	NORMAL	

Format: HNGSRatios Vertical Scale: 5" per 100' Graphics File Created: 15-Feb-2007 14:17

OP System Version: 14C0-302

MCM

CMRT-B	SPC-3131-CMR_b	ECS-A	SPC-3316-NUCL_b
ECC-A	SPC-3316-NUCL_b	HNGC-B	SPC-3316-NUCL_b
HNGS-BA	SPC-3316-NUCL_b	DTC-H	14C0-302

Input DLIS Files

DEFAULT	CMR_ECS_NGS_064LUP	FN:77	PRODUCER	15-Feb-2007 07:59	2992.5 FT	1903.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_073PUP	FN:86	PRODUCER	15-Feb-2007 14:16

Schlumberger

MAIN PASS - YIELDS

MAXIS Field Log

Company: BP Alaska Drilling and Wells | Well: MT ELBERT

Input DLIS Files

DEFAULT	CMR_ECS_NGS_064LUP	FN:77	PRODUCER	15-Feb-2007 07:59	2992.5 FT	1903.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_073PUP	FN:86	PRODUCER	15-Feb-2007 14:16	2993.5 FT	1920.5 FT

OP System Version: 14C0-302

MCM

CMRT-B	SPC-3131-CMR_b	ECS-A	SPC-3316-NUCL_b
ECC-A	SPC-3316-NUCL_b	HNGC-B	SPC-3316-NUCL_b
HNGS-BA	SPC-3316-NUCL_b	DTC-H	14C0-302

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 150

HNGS Det.2 Resolution Degradation Factor (RDF2)
0 (----) 10

HNGS Det.1 Resolution Degradation Factor (RDF1)
0 (----) 10

HNGS Det.2 Gain Correction Factor (GCF2)
0.9 (----) 1.1

HNGS Det.1 Gain Correction Factor (GCF1)
0.9 (----) 1.1

Area1
From HCGR to HSGR

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 150

Caliper (BS)
6 (IN) 16

Bit Size (BS)
6 (IN) 16

HNGS Borehole Potassium (HBHK)
-0.05 (V/V) 0.05

HNGS Det.2 Chi Squared (CHI2)
10 (----) 0

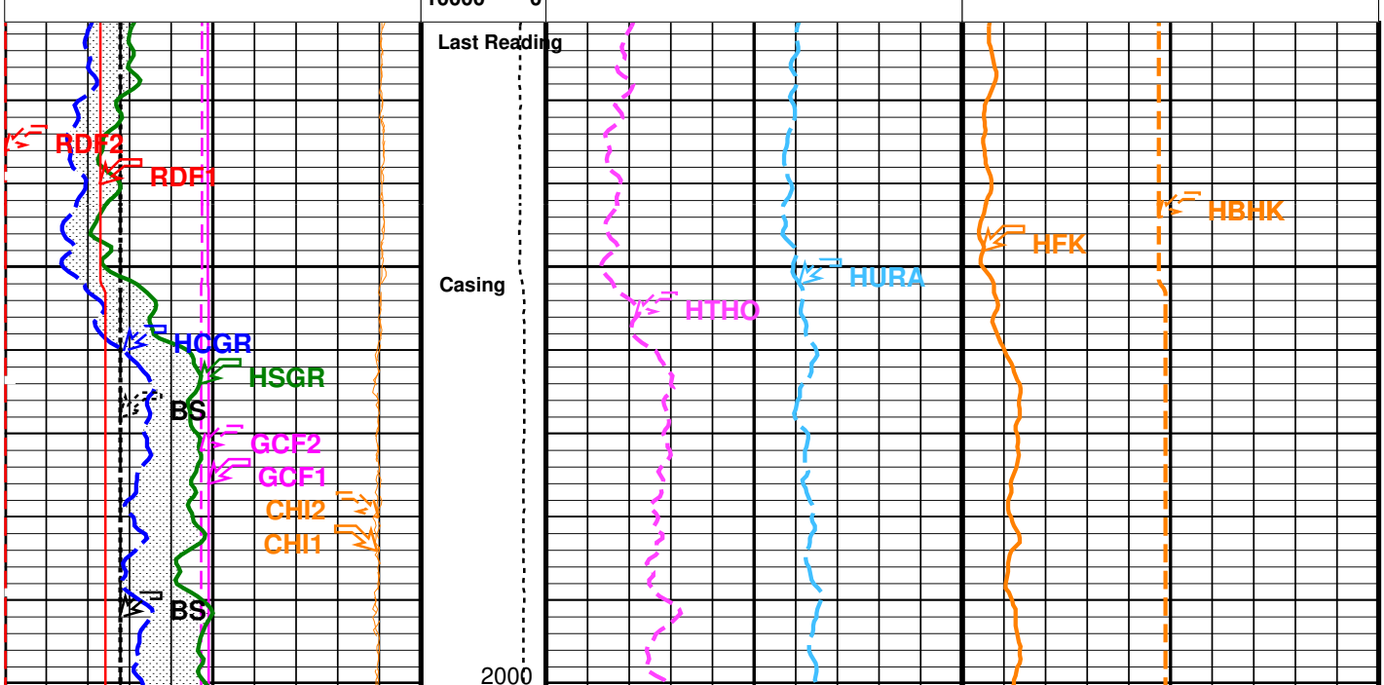
HNGS Uranium (HURA)
-10 (PPM) 30

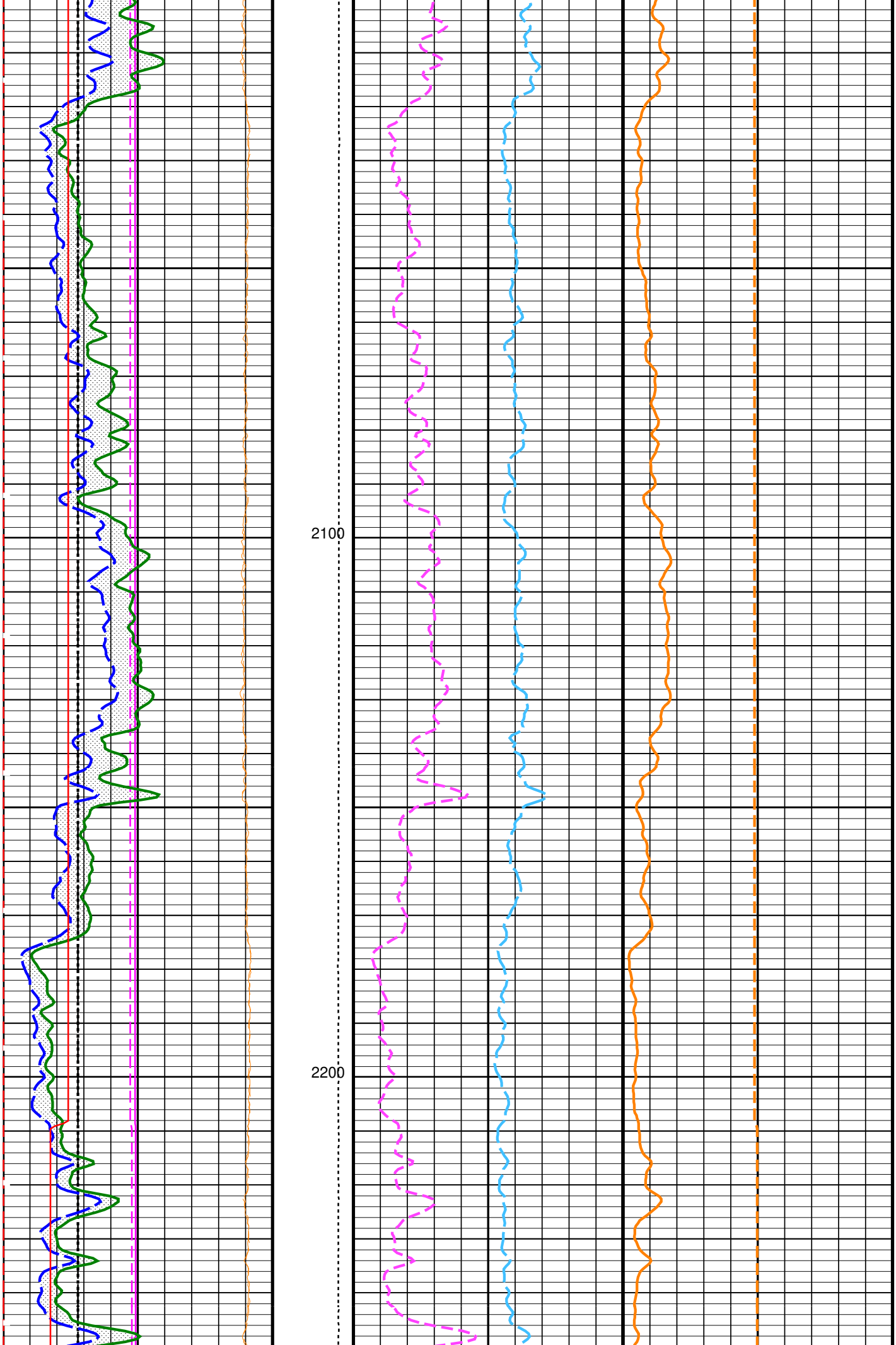
HNGS Det.1 Chi Squared (CHI1)
10 (----) 0

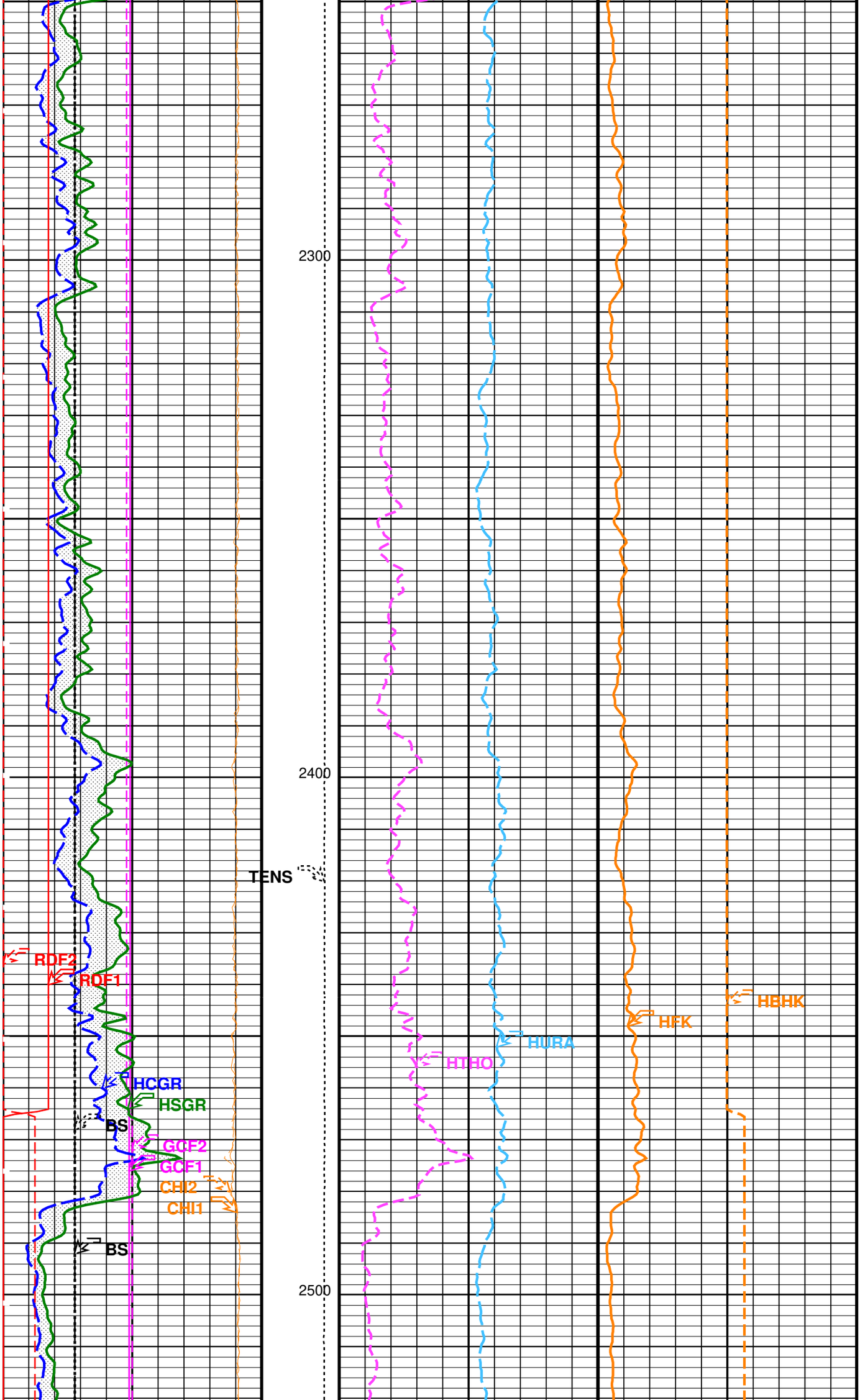
Tension (TENS) (LBF)
10000 0

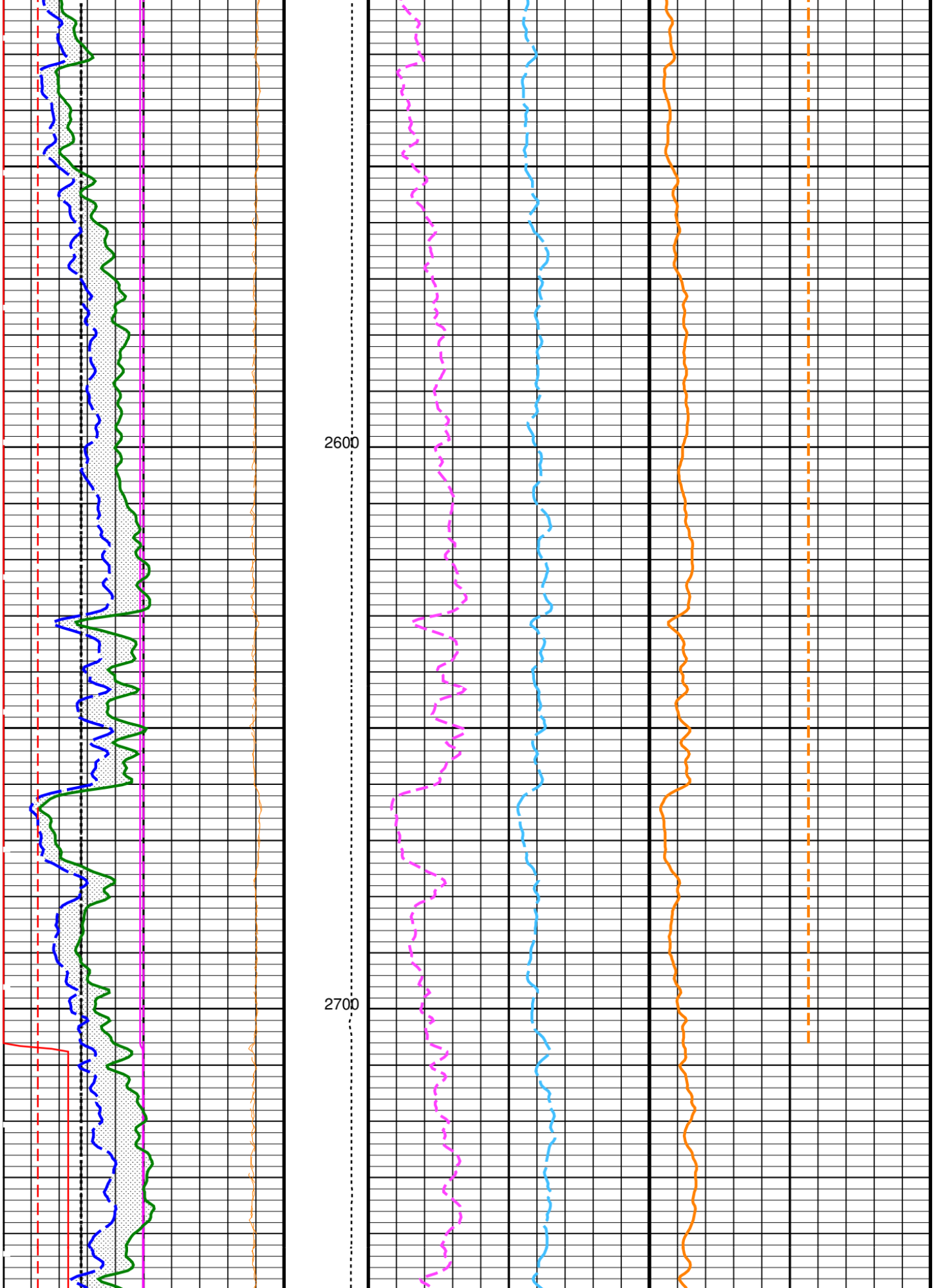
HNGS Thorium (HTHO)
0 (PPM) 30

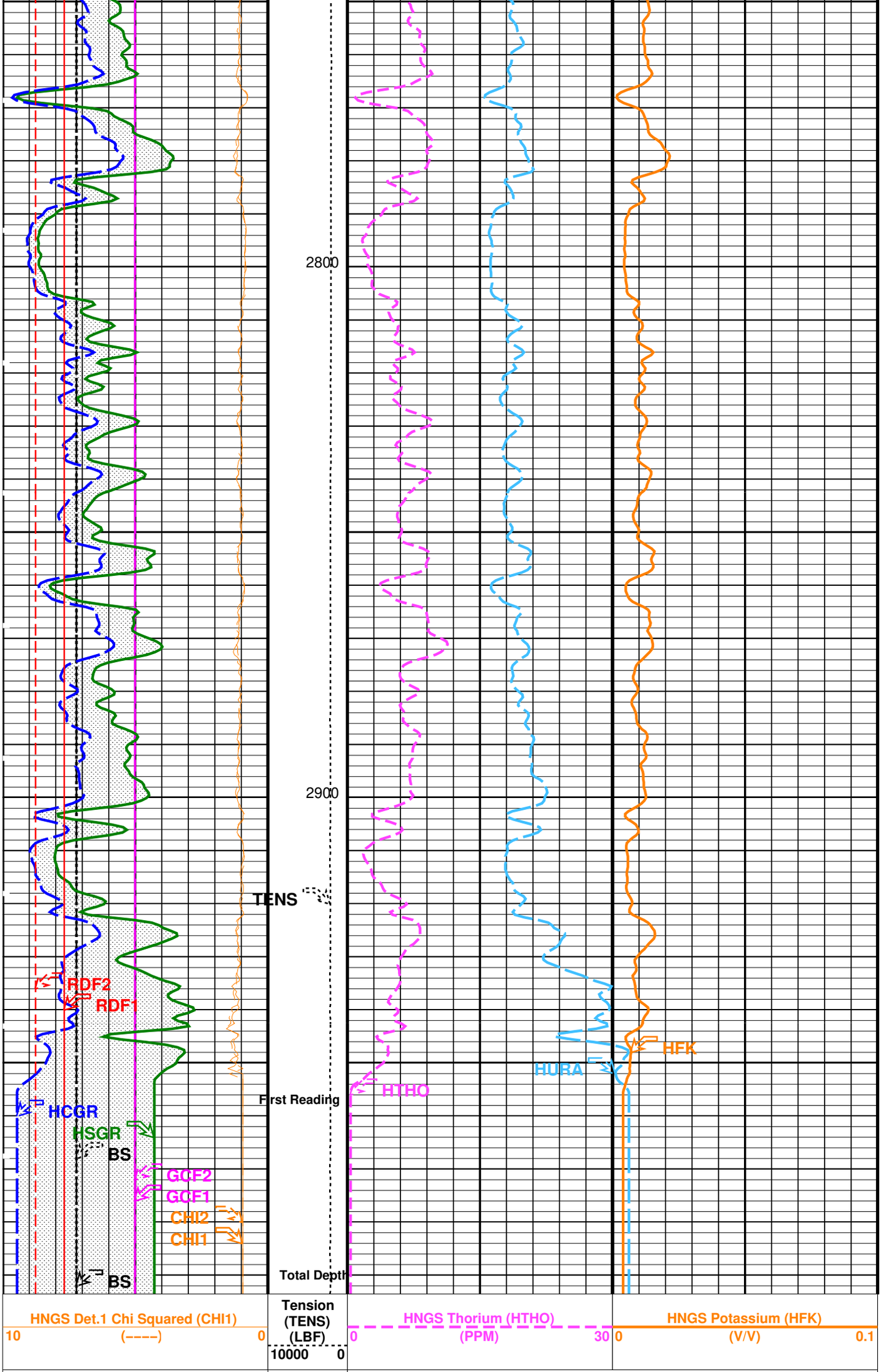
HNGS Potassium (HFK)
0 (V/V) 0.1




2100
2200


2300
2400
2500
TENS
RDF2
RDF1
HCGR
HSGR
BS
GCF2
GCF1
CHI2
CHI1
BS
HTHO
HURA
HFK
HBHK


2600
2700


2800
2900
TENS
RDF2
RDF1
HCGR
HSGR
BS
GCF2
GCF1
CHI2
CHI1
BS
First Reading
Total Depth
HTHO
HURA
HFK
HNGS Det.1 Chi Squared (CHI1)
10
(----)
0
Tension
(TENS)
(LBF)
10000
0
HNGS Thorium (HTHO)
0
(PPM)
30
HNGS Potassium (HFK)
0
(V/V)
0.1

HNGS Det.2 Chi Squared (CHI2)
10 (----) 0

HNGS Uranium (HURA)
-10 (PPM) 30

Bit Size (BS)
6 (IN) 16

HNGS Borehole Potassium (HBHK)
-0.05 (V/V) 0.05

Caliper (BS)
6 (IN) 16

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 150

Area1
From HCGR to HSGR

HNGS Det.1 Gain Correction Factor (GCF1)
0.9 (----) 1.1

HNGS Det.2 Gain Correction Factor (GCF2)
0.9 (----) 1.1

HNGS Det.1 Resolution Degradation Factor (RDF1)
0 (----) 10

HNGS Det.2 Resolution Degradation Factor (RDF2)
0 (----) 10

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 150

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	CMRT-B: Combinable Magnetic Resonance Tool - B		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
	HNGS-BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	0	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
DFD	Drilling Fluid Density	9.40	LB/G
DO	Depth Offset for Playback	1.0	FT
PP	Playback Processing	NORMAL	

Format: HNGSYields Vertical Scale: 5" per 100' Graphics File Created: 15-Feb-2007 14:17

OP System Version: 14C0-302

MCM

CMRT-B	SPC-3131-CMR_b	ECS-A	SPC-3316-NUCL_b
ECC-A	SPC-3316-NUCL_b	HNGC-B	SPC-3316-NUCL_b
HNGS-BA	SPC-3316-NUCL_b	DTC-H	14C0-302

Input DLIS Files

DEFAULT	CMR_ECS_NGS_064LUP	FN:77	PRODUCER	15-Feb-2007 07:59	2992.5 FT	1903.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_073PUP	FN:86	PRODUCER	15-Feb-2007 14:16

Schlumberger

REPEAT SECTION – RATIOS

MAXIS Field Log

Company: BP Alaska Drilling and Wells **Well: MT ELBERT**

Input DLIS Files

DEFAULT	CMR_ECS_NGS_065LUP	FN:78	PRODUCER	15–Feb–2007 08:58	2355.0 FT	1927.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_074PUP	FN:87	PRODUCER	15–Feb–2007 14:31	2356.0 FT	1943.0 FT

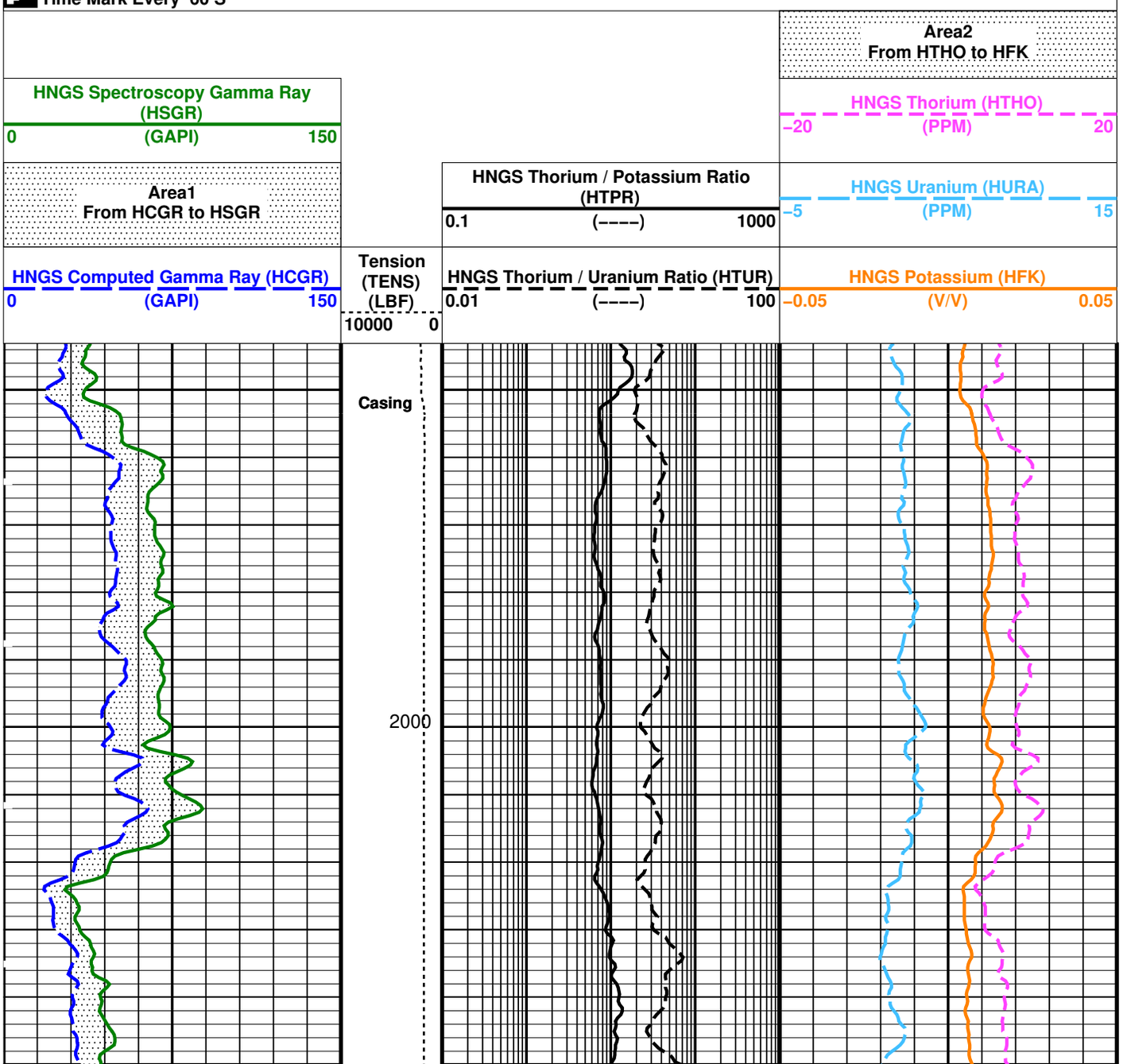
OP System Version: 14C0–302

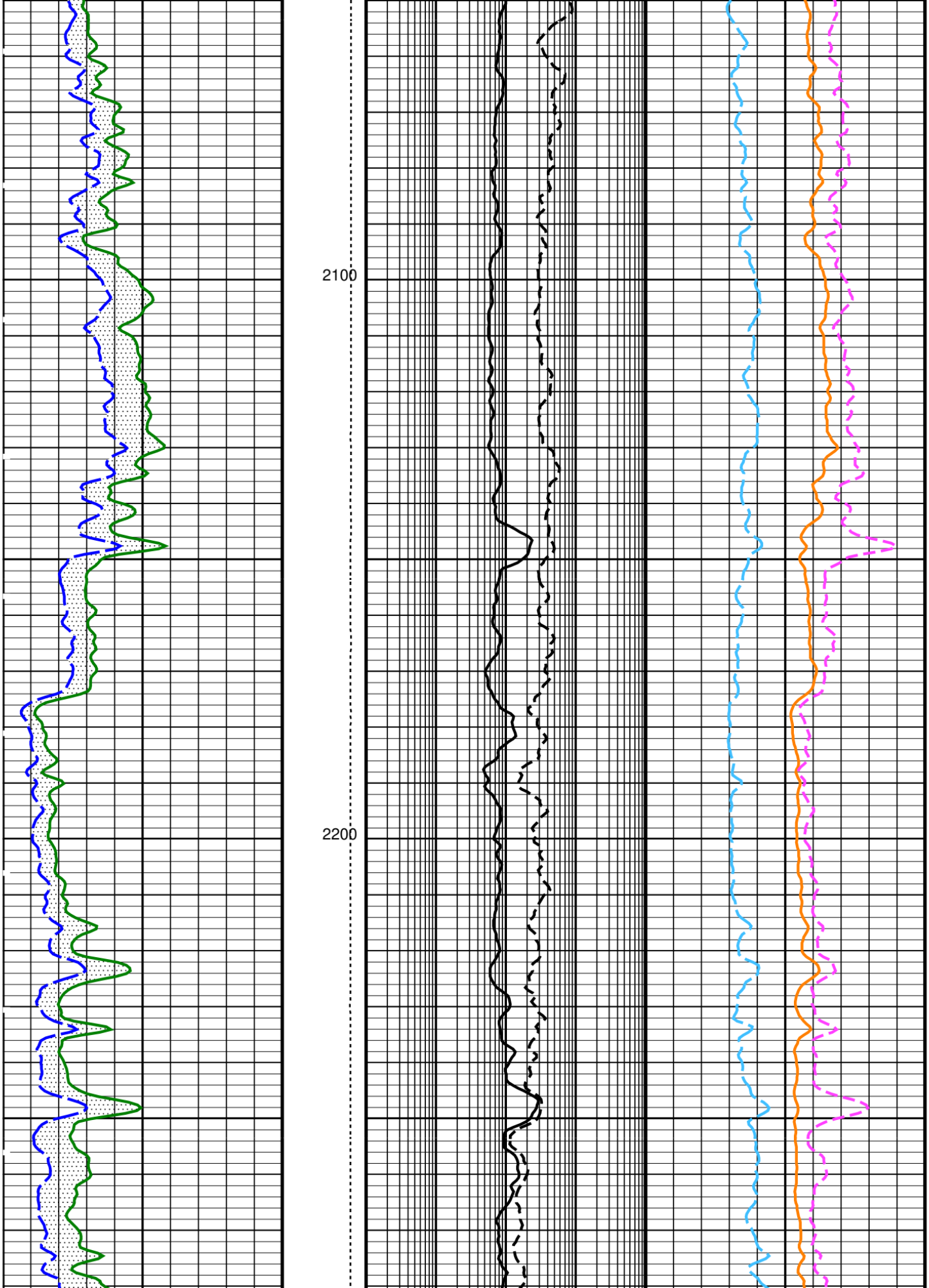
MCM

CMRT–B	SPC–3131–CMR_b	ECS–A	SPC–3316–NUCL_b
ECC–A	SPC–3316–NUCL_b	HNGC–B	SPC–3316–NUCL_b
HNGS–BA	SPC–3316–NUCL_b	DTC–H	14C0–302

PIP SUMMARY

Time Mark Every 60 S

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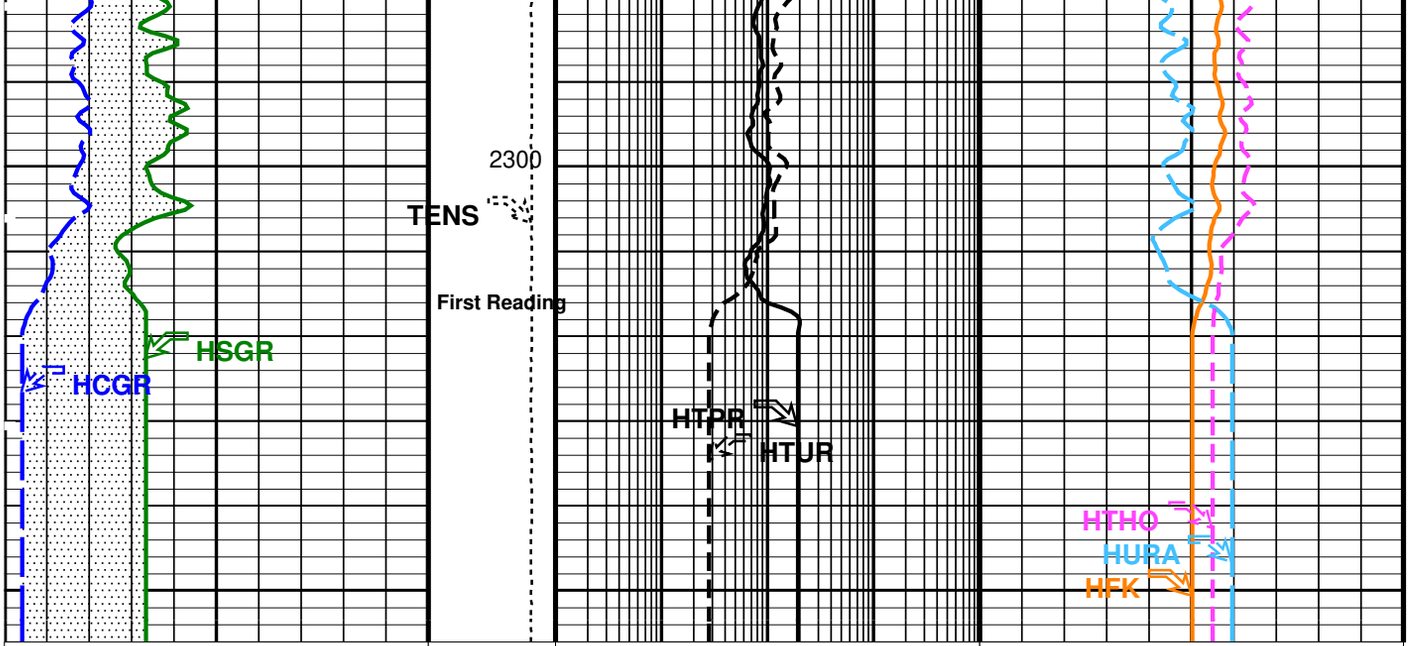
2200



HNGS Computed Gamma Ray (HCGR)	Tension (TENS) (LBF)	HNGS Thorium / Uranium Ratio (HTUR)	HNGS Potassium (HFK)
0 (GAPI) 150	10000 0	0.01 (----) 100	−0.05 (V/V) 0.05

Area1 From HCGR to HSGR	HNGS Thorium / Potassium Ratio (HTPR)	HNGS Uranium (HURA)
	0.1 (----) 1000	−5 (PPM) 15

HNGS Spectroscopy Gamma Ray (HSGR)	HNGS Thorium (HTHO)
0 (GAPI) 150	−20 (PPM) 20

Area2 From HTHO to HFK

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	CMRT−B: Combinable Magnetic Resonance Tool − B		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	0	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
DFD	Drilling Fluid Density	9.40	LB/G
DO	Depth Offset for Playback	1.0	FT
PP	Playback Processing	NORMAL	

Format: HNGSRatios Vertical Scale: 5" per 100' Graphics File Created: 15−Feb−2007 14:31

OP System Version: 14C0−302

MCM

CMRT−B	SPC−3131−CMR_b	ECS−A	SPC−3316−NUCL_b
ECC−A	SPC−3316−NUCL_b	HNGC−B	SPC−3316−NUCL_b
HNGS−BA	SPC−3316−NUCL_b	DTC−H	14C0−302

Input DLIS Files

DEFAULT	CMR_ECS_NGS_065LUP	FN:78	PRODUCER	15–Feb–2007 08:58	2355.0 FT	1927.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_074PUP	FN:87	PRODUCER	15–Feb–2007 14:31

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REPEAT SECTION – YIELDS

MAXIS Field Log

Company: BP Alaska Drilling and Wells **Well: MT ELBERT**

Input DLIS Files

DEFAULT	CMR_ECS_NGS_065LUP	FN:78	PRODUCER	15–Feb–2007 08:58	2355.0 FT	1927.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_074PUP	FN:87	PRODUCER	15–Feb–2007 14:31	2356.0 FT	1943.0 FT

OP System Version: 14C0–302

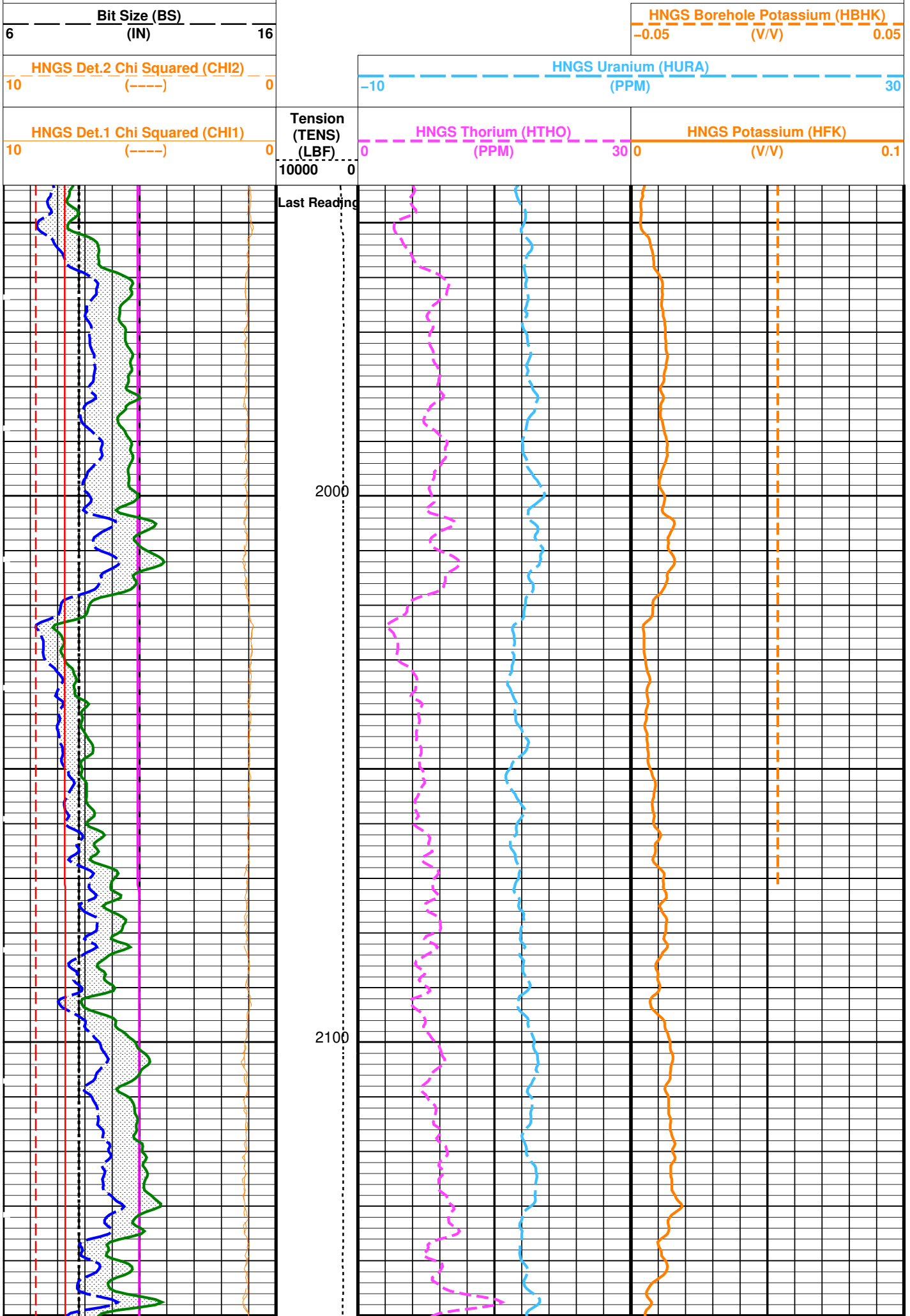
MCM

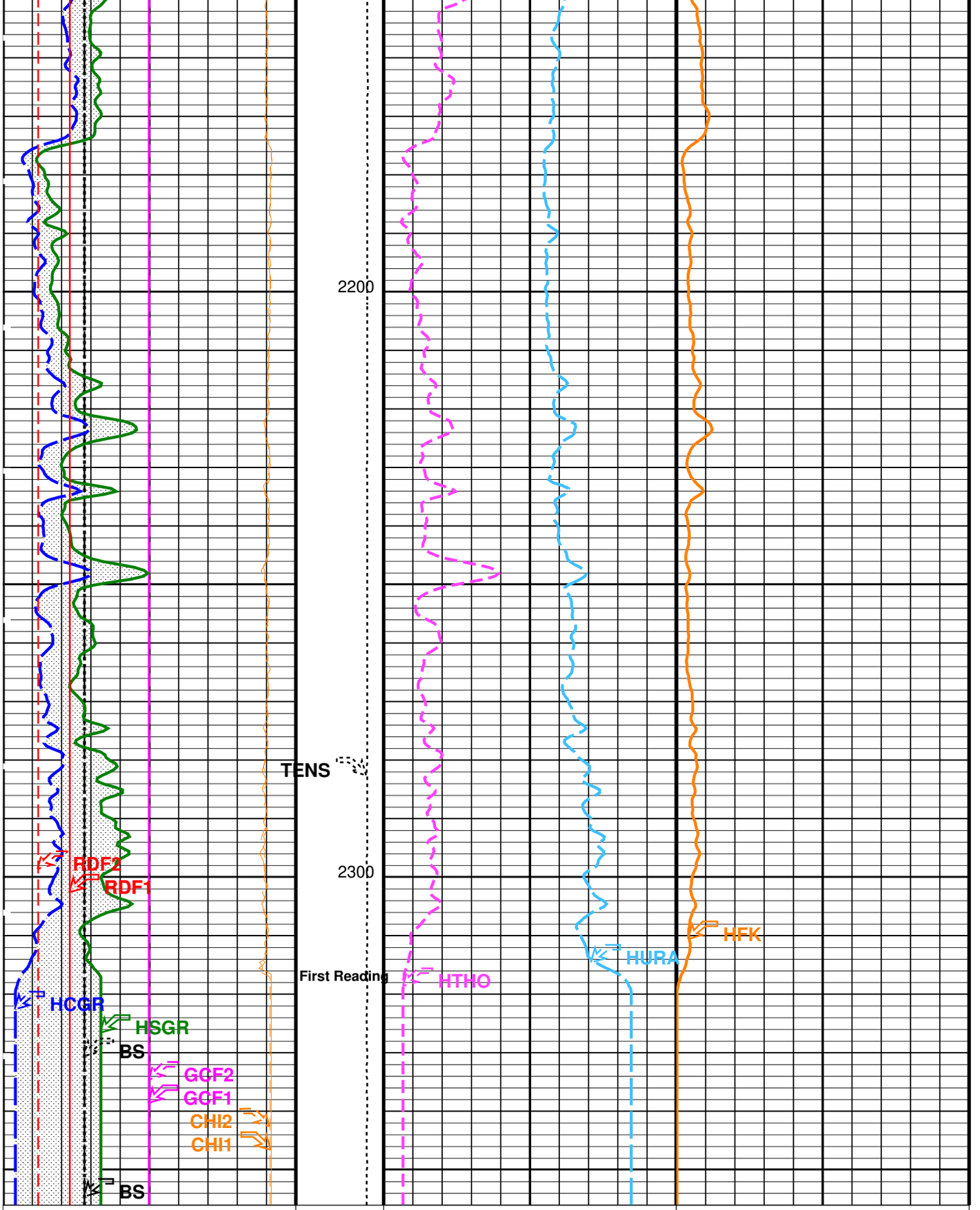
CMRT–B	SPC–3131–CMR_b	ECS–A	SPC–3316–NUCL_b
ECC–A	SPC–3316–NUCL_b	HNGC–B	SPC–3316–NUCL_b
HNGS–BA	SPC–3316–NUCL_b	DTC–H	14C0–302

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)		
0	(GAPI)	150
HNGS Det.2 Resolution Degradation Factor (RDF2)		
0	(----)	10
HNGS Det.1 Resolution Degradation Factor (RDF1)		
0	(----)	10
HNGS Det.2 Gain Correction Factor (GCF2)		
0.9	(----)	1.1
HNGS Det.1 Gain Correction Factor (GCF1)		
0.9	(----)	1.1
Area1 From HCGR to HSGR		
HNGS Computed Gamma Ray (HCGR)		
0	(GAPI)	150
Caliper (BS)		
6	(IN)	16


Bit Size (BS)
6 (IN) 16
HNGS Borehole Potassium (HBHK)
-0.05 (V/V) 0.05
HNGS Det.2 Chi Squared (CHI2)
10 (----) 0
HNGS Uranium (HURA)
-10 (PPM) 30
HNGS Det.1 Chi Squared (CHI1)
10 (----) 0
Tension (TENS) (LBF)
10000 0
HNGS Thorium (HTHO)
0 (PPM) 30
HNGS Potassium (HFK)
0 (V/V) 0.1
Last Reading
2000
2100



HNGS Det.1 Chi Squared (CHI1) 10 (----) 0	Tension (TENS) (LBF) 10000 0	HNGS Thorium (HTHO) 0 (PPM) 30
HNGS Potassium (HFK) 0 (V/V) 0.1	HNGS Det.2 Chi Squared (CHI2) 10 (----) 0	HNGS Uranium (HURA) −10 (PPM) 30
Bit Size (BS) 6 (IN) 16	HNGS Borehole Potassium (HBHK) −0.05 (V/V) 0.05	Caliper (BS) 6 (IN) 16
HNGS Computed Gamma Ray (HCGR) 0 (GAPI) 150		

Area1 From HCGR to HSGR		
HNGS Det.1 Gain Correction Factor (GCF1)		
0.9	(----)	1.1
HNGS Det.2 Gain Correction Factor (GCF2)		
0.9	(----)	1.1
HNGS Det.1 Resolution Degradation Factor (RDF1)		
0	(----)	10
HNGS Det.2 Resolution Degradation Factor (RDF2)		
0	(----)	10
HNGS Spectroscopy Gamma Ray (HSGR)		
0	(GAPI)	150

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	CMRT-B: Combinable Magnetic Resonance Tool - B		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
	HNGS-BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	0	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
DFD	Drilling Fluid Density	9.40	LB/G
DO	Depth Offset for Playback	1.0	FT
PP	Playback Processing	NORMAL	

Format: HNGSYields Vertical Scale: 5" per 100' Graphics File Created: 15-Feb-2007 14:31

OP System Version: 14C0-302

MCM

CMRT-B	SPC-3131-CMR_b	ECS-A	SPC-3316-NUCL_b
ECC-A	SPC-3316-NUCL_b	HNGC-B	SPC-3316-NUCL_b
HNGS-BA	SPC-3316-NUCL_b	DTC-H	14C0-302

Input DLIS Files

DEFAULT	CMR_ECS_NGS_065LUP	FN:78	PRODUCER	15-Feb-2007 08:58	2355.0 FT	1927.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_074PUP	FN:87	PRODUCER	15-Feb-2007 14:31

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MAIN PASS LOG QUALITY CONTROL

MAXIS Field Log

Input DLIS Files

DEFAULT	CMR_ECS_NGS_064LUP	FN:77	PRODUCER	15-Feb-2007 07:59	2992.5 FT	1903.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_073PUP	FN:86	PRODUCER	15-Feb-2007 14:16	2993.5 FT	1920.5 FT

OP System Version: 14C0-302

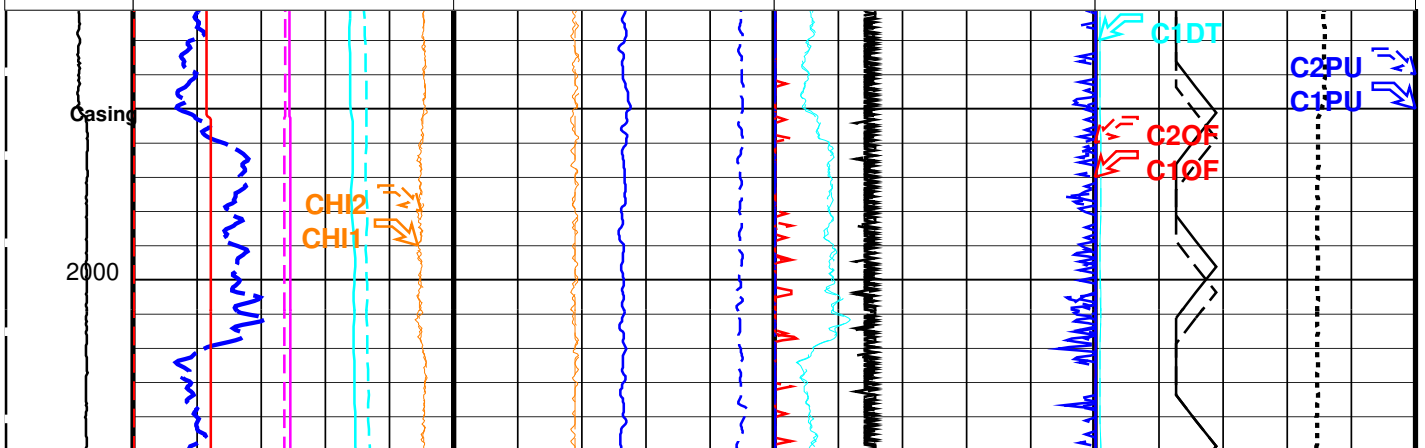
MCM

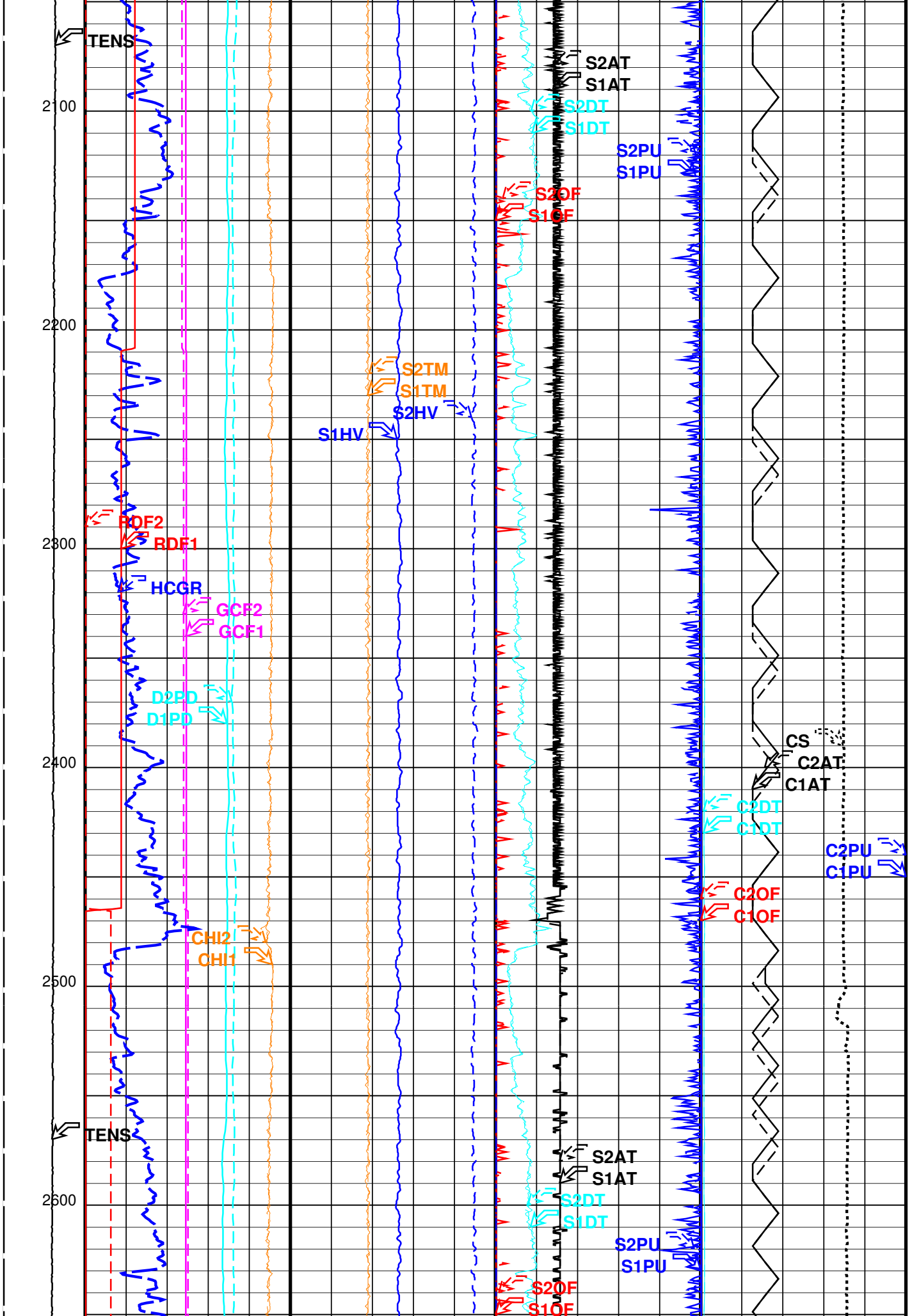
CMRT-B	SPC-3131-CMR_b	ECS-A	SPC-3316-NUCL_b
ECC-A	SPC-3316-NUCL_b	HNGC-B	SPC-3316-NUCL_b
HNGS-BA	SPC-3316-NUCL_b	DTC-H	14C0-302

PIP SUMMARY

Time Mark Every 60 S

	HNGS Det.2 Pulse Shape Compensation DAC Value (D2PD) 15000 (----) 25000			Cable Speed (CS) 5000 (F/HR) 0
	HNGS Det.1 Pulse Shape Compensation DAC Value (D1PD) 15000 (----) 25000		HNGS Det.2 Spectrum Accumulation Time (S2AT) 0 (S) 4	HNGS Det.2 Coincidence Spectrum Accumulation Time (C2AT) 0 (S) 60
	HNGS Computed Gamma Ray (HCGR) 0 (GAPI) 150		HNGS Det.1 Spectrum Accumulation Time (S1AT) 0 (S) 4	HNGS Det.1 Coincidence Spectrum Accumulation Time (C1AT) 0 (S) 60
	HNGS Det.2 Resolution Degradation Factor (RDF2) 0 (----) 10		HNGS Det.2 Deadtime Count Rate (S2DT) 0 (CPS) 100	HNGS Det.2 Coincidence Deadtime Count Rate (C2DT) 0 (CPS) 200
	HNGS Det.1 Resolution Degradation Factor (RDF1) 0 (----) 10		HNGS Det.1 Deadtime Count Rate (S1DT) 0 (CPS) 100	HNGS Det.1 Coincidence Deadtime Count Rate (C1DT) 0 (CPS) 200
	HNGS Det.2 Gain Correction Factor (GCF2) 0.9 (----) 1.1	HNGS Det.2 Temperature Value (S2TM) 0 (DEGC) 50	HNGS Det.2 Pileup Count Rate (S2PU) 10 (CPS) 0	HNGS Det.2 Coincidence Pileup Count Rate (C2PU) 10 (CPS) 0
	HNGS Det.1 Gain Correction Factor (GCF1) 0.9 (----) 1.1	HNGS Det.1 Temperature Value (S1TM) 0 (DEGC) 50	HNGS Det.1 Pileup Count Rate (S1PU) 10 (CPS) 0	HNGS Det.1 Coincidence Pileup Count Rate (C1PU) 10 (CPS) 0
	HNGS Det.2 Chi Squared (CHI2) 10 (----) 0	HNGS Det.2 High Voltage DAC Value (S2HV) 1000 (V) 1200	HNGS Det.2 Overflow Count Rate (S2OF) 0 (CPS) 10	HNGS Det.2 Coincidence Overflow Count Rate (C2OF) 0 (CPS) 10
Tension (TENS) (LBF) 5000 0	HNGS Det.1 Chi Squared (CHI1) 10 (----) 0	HNGS Det.1 High Voltage DAC Value (S1HV) 1000 (V) 1200	HNGS Det.1 Overflow Count Rate (S1OF) 0 (CPS) 10	HNGS Det.1 Coincidence Overflow Count Rate (C1OF) 0 (CPS) 10




TENS
2100
2200
2300
2400
2500
2600
S2AT
S1AT
S2DT
S1DT
S2PU
S1PU
S2OF
S1OF
S2TM
S1TM
S2HV
S1HV
RDF2
RDF1
HCGR
GCF2
GCF1
D2PD
D1PD
CS
C2AT
C1AT
C2DT
C1DT
C2PU
C1PU
C2OF
C1OF
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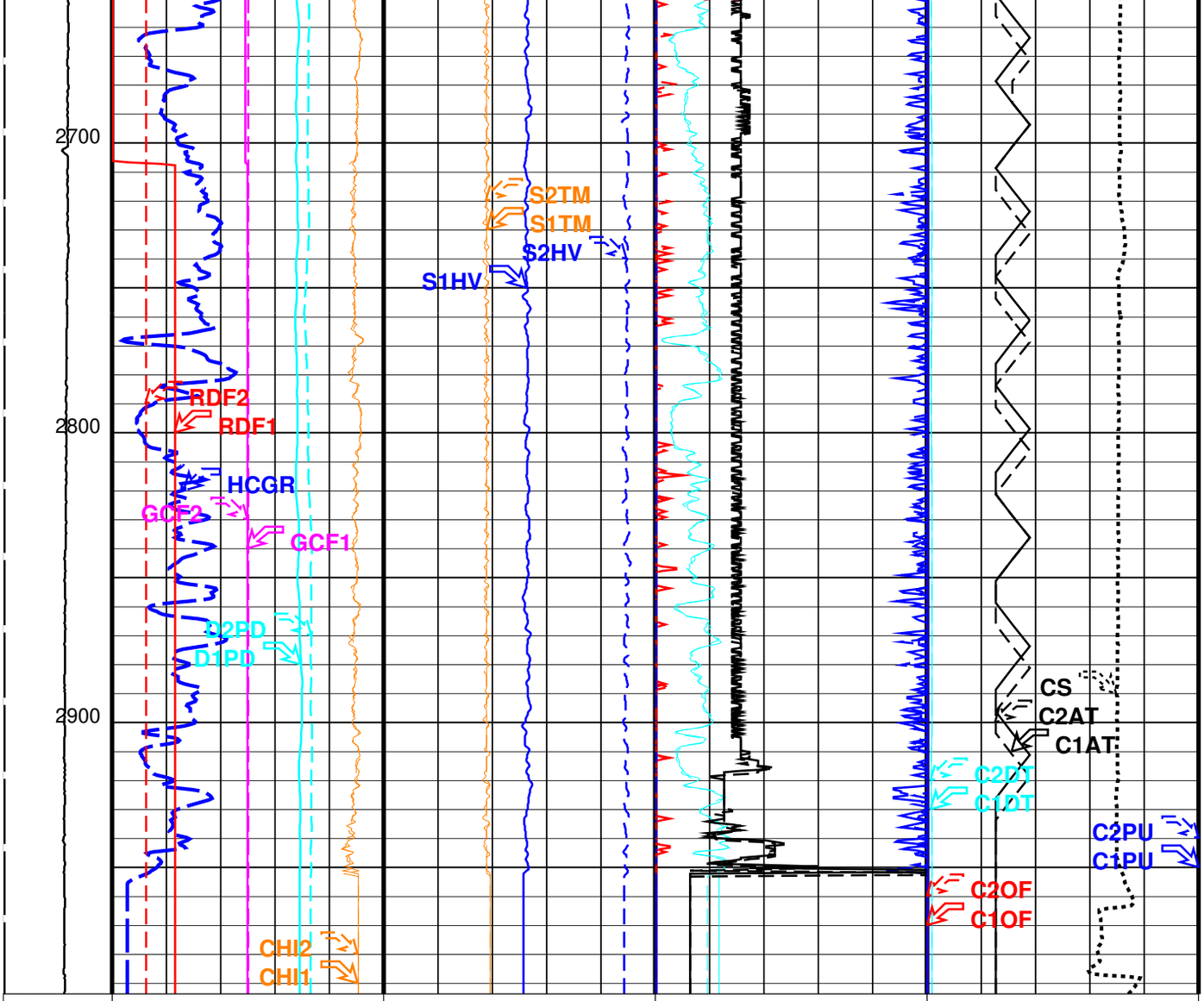
S1OF



Tension (TENS) (LBF)			
5000 0	HNGS Det.1 Chi Squared (CHI1) 10 (----) 0	HNGS Det.1 High Voltage DAC Value (S1HV) 1000 (V) 1200	HNGS Det.1 Overflow Count Rate (S1OF) 0 (CPS) 10
	HNGS Det.2 Chi Squared (CHI2) 10 (----) 0	HNGS Det.2 High Voltage DAC Value (S2HV) 1000 (V) 1200	HNGS Det.2 Overflow Count Rate (S2OF) 0 (CPS) 10
	HNGS Det.1 Gain Correction Factor (GCF1) 0.9 (----) 1.1	HNGS Det.1 Temperature Value (S1TM) 0 (DEGC) 50	HNGS Det.1 Pileup Count Rate (S1PU) 10 (CPS) 0
	HNGS Det.2 Gain Correction Factor (GCF2) 0.9 (----) 1.1	HNGS Det.2 Temperature Value (S2TM) 0 (DEGC) 50	HNGS Det.2 Pileup Count Rate (S2PU) 10 (CPS) 0
	HNGS Det.1 Resolution Degradation Factor (RDF1) 0 (----) 10		HNGS Det.1 Deadtime Count Rate (S1DT) 0 (CPS) 100
	HNGS Det.2 Resolution Degradation Factor (RDF2) 0 (----) 10		HNGS Det.2 Deadtime Count Rate (S2DT) 0 (CPS) 100
	HNGS Computed Gamma Ray (HCGR) 0 (GAPI) 150		HNGS Det.1 Spectrum Accumulation Time (S1AT) 0 (S) 4
	HNGS Det.1 Pulse Shape Compensation DAC Value (D1PD) 15000 (----) 25000		HNGS Det.2 Spectrum Accumulation Time (S2AT) 0 (S) 4
	HNGS Det.2 Pulse Shape Compensation DAC Value (D2PD) 15000 (----) 25000		

HNGS Det.1 Coincidence Overflow Count Rate (C1OF)	0 (CPS) 10
HNGS Det.2 Coincidence Overflow Count Rate (C2OF)	0 (CPS) 10
HNGS Det.1 Coincidence Pileup Count Rate (C1PU)	10 (CPS) 0
HNGS Det.2 Coincidence Pileup Count Rate (C2PU)	10 (CPS) 0
HNGS Det.1 Coincidence Deadtime Count Rate (C1DT)	0 (CPS) 200
HNGS Det.2 Coincidence Deadtime Count Rate (C2DT)	0 (CPS) 200
HNGS Det.1 Coincidence Spectrum Accumulation Time (C1AT)	0 (S) 60
HNGS Det.2 Coincidence Spectrum Accumulation Time (C2AT)	0 (S) 60
Cable Speed (CS)	5000 (F/HR) 0

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	CMRT–B: Combinable Magnetic Resonance Tool – B		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
	HNGS–BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	0	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma–Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0	
	System and Miscellaneous		
BS	Bit Size	8.750	IN
DFD	Drilling Fluid Density	9.40	LB/G
DO	Depth Offset for Playback	1.0	FT
PP	Playback Processing	NORMAL	

Format: HNGSLQC Vertical Scale: 2" per 100' Graphics File Created: 15–Feb–2007 14:17

OP System Version: 14C0–302

MCM

CMRT–B	SPC–3131–CMR_b	ECS–A	SPC–3316–NUCL_b
ECC–A	SPC–3316–NUCL_b	HNGC–B	SPC–3316–NUCL_b
HNGS–BA	SPC–3316–NUCL_b	DTC–H	14C0–302

Input DLIS Files

DEFAULT	CMR_ECS_NGS_064LUP	FN:77	PRODUCER	15–Feb–2007 07:59	2992.5 FT	1903.5 FT

Output DLIS Files

DEFAULT	CMR_ECS_NGS_073PUP	FN:86	PRODUCER	15–Feb–2007 14:16

Schlumberger

CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Combinable Magnetic Resonance Tool – B Master Calibration – Calibration Fixture Measurement							
Master: 9–Feb–2007 20:38							
Tool Temperature MCAL	80.60	61.20	––	––	––	––	DEGF
LOOP Measurement MCAL	2300	1868	––	––	––	––	
Hall Probe B0 MCAL	52.00	52.69	––	––	––	––	MTES
Cal. Fixture Amplitude MCAL	37.50	33.83	––	––	––	––	%
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check							
Master: 8–Feb–2007 11:18 Before: 8–Feb–2007 11:26							
Na 511 Peak Loc	40.00	40.60	40.66	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.49	16.46	N/A	N/A	2.000	%
High Voltage	1150	1101	1102	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	145.6	145.7	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.248	8.854	N/A	N/A	2.000	%
Temperature	59.90	63.58	63.58	N/A	N/A	N/A	DEGF
Na Count Rate	45.00	48.46	49.77	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check
Master: 8–Feb–2007 11:18 Before: 8–Feb–2007 11:26

Na 511 Peak Loc	40.00	39.56	39.63	N/A	N/A	1.000	
Na 511 Peak Res	15.50	14.30	14.44	N/A	N/A	2.000	%
High Voltage	1150	974.2	974.5	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.7	142.9	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	7.270	7.203	N/A	N/A	2.000	%
Temperature	59.90	63.53	63.54	N/A	N/A	N/A	DEGF
Na Count Rate	45.00	48.27	49.41	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2
Master: 8–Feb–2007 11:18 Before: 8–Feb–2007 11:26

Coincidence Count Rate Ratio	1.000	1.008	1.013	N/A	N/A	0.05000

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration
Master: 8–Feb–2007 11:18

Na 511 Peak Set Point	40.00	42.00	––	––	––	––	
Th Peak Loc	209.6	211.7	––	––	––	––	
Th Peak Res	7.000	7.240	––	––	––	––	%
Background Count Rate	142.5	78.19	––	––	––	––	CPS
Gain Ratio	1.000	0.9919	––	––	––	––	

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration
Master: 8–Feb–2007 11:18

Na 511 Peak Set Point	40.00	41.00	––	––	––	––	
Th Peak Loc	209.6	211.8	––	––	––	––	
Th Peak Res	7.000	6.535	––	––	––	––	%
Background Count Rate	142.5	75.88	––	––	––	––	CPS
Gain Ratio	1.000	1.018	––	––	––	––	

Combinable Magnetic Resonance Tool – B / Equipment Identification

Primary Equipment:

CMR–B Sonde	CMRS – BA	85
CMR Cartridge	CMRC – BA	81

Auxiliary Equipment:

Combinable Magnetic Resonance Tool – B Master Calibration
Calibration Fixture Measurement

Phase	Tool Temperature MCAL DEGF	Value
Master	50.00 (Minimum) 80.60 (Nominal) 111.2 (Maximum)	61.20

Phase	LOOP Measurement MCAL	Value
Master	1500 (Minimum) 2300 (Nominal) 2900 (Maximum)	1868

Phase	Hall Probe B0 MCAL MTES	Value
Master	50.00 (Minimum) 52.00 (Nominal) 55.00 (Maximum)	52.69

Phase	Cal. Fixture Amplitude MCAL %	Value
Master	25.00 (Minimum) 37.50 (Nominal) 50.00 (Maximum)	33.83

Master: 9–Feb–2007 20:38

Elemental Capture Spectroscopy Tool / Equipment Identification

Primary Equipment:

ECS Sonde	ECS – A	31
ECS Detector Package	ECSD – A	4
ECS AmBe Source	NSR – F	

Auxiliary Equipment:

ECS Sonde Housing	ECSH – A

Elemental Capture Cartridge – A / Equipment Identification

Primary Equipment:

ECC Cartridge	ECC – A	32

Auxiliary Equipment:

ECC Housing	ECH – A

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification

Primary Equipment:

HNGC Cartridge	HNGC – B	395

Auxiliary Equipment:

HNGC Housing	HNGH – A	337

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS – BA	144
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH – BA	25
Gamma Source Radioactive	GSR – U	1902

Hostile Natural Gamma Ray Sonde Wellsite Calibration
Detector 1 Check

Phase	Na 511 Peak Loc	Value
Master		40.60
Before		40.66
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)	

Phase	Na 511 Peak Res %	Value
Master		16.49
Before		16.46
	12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)	

Phase	High Voltage V	Value
Master		1101
Before		1102
	900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	

Phase	Na 1785 Peak Loc	Value
Master		145.6
Before		145.7
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)	

Phase	Na 1785 Peak Res %	Value
Master		8.248
Before		8.854
	7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)	

Phase	Temperature DEGF	Value
Master		63.58
Before		63.58
	–20.00 (Minimum) 59.90 (Nominal) 140.0 (Maximum)	

Phase	Na Count Rate CPS	Value
Master		48.46
Before		49.77
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	

Master: 8–Feb–2007 11:18 Before: 8–Feb–2007 11:26

Hostile Natural Gamma Ray Sonde Wellsite Calibration
Detector 2 Check

Phase	Na 511 Peak Loc	Value
Master		39.56
Before		39.63
	37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)	

Phase	Na 511 Peak Res %	Value
Master		14.30
Before		14.44
	12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)	

Phase	High Voltage V	Value
Master		974.2
Before		974.5
	900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	

Phase	Na 1785 Peak Loc	Value
Master		142.7
Before		142.9
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)	

Phase	Na 1785 Peak Res %	Value
Master		7.270
Before		7.203
	7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)	

Phase	Temperature DEGF	Value
Master		63.53
Before		63.54
	–20.00 (Minimum) 59.90 (Nominal) 140.0 (Maximum)	

Phase	Na Count Rate CPS	Value
Master		48.27
Before		49.41
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	

Master: 8–Feb–2007 11:18 Before: 8–Feb–2007 11:26

Hostile Natural Gamma Ray Sonde Wellsite Calibration
Ratio Of Detector 1 To Detector 2

Phase	Coincidence Count Rate Ratio	Value
Master		1.008
Before		1.013
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Master: 8–Feb–2007 11:18
Before: 8–Feb–2007 11:26

Hostile Natural Gamma Ray Sonde Master Calibration
Detector 1 Calibration

Phase	Na 511 Peak Set Point	Value
Master		42.00
	38.00 (Minimum) 40.00 (Nominal) 43.00 (Maximum)	

Phase	Th Peak Loc	Value
Master		211.7
	201.0 (Minimum) 209.6 (Nominal) 218.3 (Maximum)	

Phase	Th Peak Res %	Value
Master		7.240
	5.000 (Minimum) 7.000 (Nominal) 9.000 (Maximum)	

Phase	Background Count Rate CPS	Value
Master		78.19
	10.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)	

Phase	Gain Ratio	Value
Master		0.9919
	0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)	

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Hostile Natural Gamma Ray Sonde Master Calibration

Detector 2 Calibration

Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		41.00	Master		211.8	Master		6.535
38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)	201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)	5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)
Phase	Background Count Rate CPS	Value	Phase	Gain Ratio	Value			
Master		75.88	Master		1.018			
10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)	0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)			

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Company: **BP EXPLORATION (ALASKA), INC.**

Schlumberger

Well: **MT. ELBERT–01**
Field: **MILNE POINT UNIT**
Borough: **NORTH SLOPE**
State: **ALASKA**

FINAL

HOSTILE ENVIRONMENTAL NATURAL GAMMA RAY SONDE
HNGS LOG
14–FEB–2007