

Schlumberger

Company: Lamont Doherty Earth Observatory

Well: Expedition 341, Site U1417E

Field: Southern Alaska Margin Tectonics

Rig: JOIDES Resolution Ocean: Pacific

**Magnetic Susceptibility Sonde
Deep Reading and High Resolution
Gamma Ray**

Rig: JOIDES Resolution
Field: Southern Alaska Margin Tectonics
Location: Latitude: N 56° 57.5888'
Well: Expedition 341, Site U1417E
Company: Lamont Doherty Earth Observatory

LOCATION	Latitude: N 56° 57.5888'	Elev.: K.B. -4200.00 m	
	Longitude: W 147° 6.5983'	G.L. 0.00 m	
		D.F. -4200.00 m	
Permanent Datum: Mean Sea Level	Elev.: 0.00 m		
Log Measured From: Drill Floor	-4200.00 m above Perm. Datum		
Drilling Measured From: Drill Floor			
API Serial No.	Max. Hole Devi. 0 deg	Longitude W 147.1099	Latitude N 56.9598

Logging Date	21-Jun-2013		
Run Number	1		
Depth Driller	709.5 m		
Schlumberger Depth	199 m		
Bottom Log Interval	199 m		
Top Log Interval	0 m		
Casing Driller Size @ Depth	5.500 in	@	81 m
Casing Schlumberger	84 m		
Bit Size	9.875 in		
Type Fluid In Hole	Seawater		
MUD	Density	Viscosity	1.03 g/cm3
	Fluid Loss	PH	
	Source Of Sample	N/A	
RM @ Measured Temperature	@		@
RMF @ Measured Temperature	@		@
RMC @ Measured Temperature	@		@
Source RMF	RMC	N/A	N/A
RM @ MRT	RMF @ MRT	@ 14	@ 14
Maximum Recorded Temperatures	14 degC		
Circulation Stopped	Time	20-Jun-2013	19:30
Logger On Bottom	Time	21-Jun-2013	2:30
Unit Number	Location	625003	Houston
Recorded By	K. Swain		
Witnessed By	A. Slagle, L. Drab		

	Run 1	Run 2	Run 3
Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth		@	
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
MUD	Density	Viscosity	
	Fluid Loss	PH	
	Source Of Sample		
RM @ Measured Temperature		@	
RMF @ Measured Temperature		@	
RMC @ Measured Temperature		@	
Source RMF	RMC		
RM @ MRT	RMF @ MRT	@	@
Maximum Recorded Temperatures			
Circulation Stopped	Time		
Logger On Bottom	Time		
Unit Number	Location		
Recorded By			
Witnessed By			

DISCLAIMER
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OTHER SERVICES1
 OS1: FMS
 OS2: DSI
 OS3: HNGS
 OS4: VSI
 OS5: HRLA/HLDS/APS

OTHER SERVICES2
 OS1:
 OS2:
 OS3:
 OS4:
 OS5:

REMARKS: RUN NUMBER 1
 Hole drilled with RCB coring bit and bottom hole assembly (BHA). 9 7/8" BS

REMARKS: RUN NUMBER 2

Bridged out before 1st run TD at 199mbsf.

LDEO-MSS tool consisting of DR and HR sensors with the electronics cartridge and ELIC.
 RCB coring bit released on bottom of hole prior to logging to allow wireline tools to pass out of drill collars/pipe into open hole.

RUN 1

SERVICE ORDER #: _____
 PROGRAM VERSION: 19C0-187
 FLUID LEVEL: _____

RUN 2

SERVICE ORDER #: _____
 PROGRAM VERSION: _____
 FLUID LEVEL: _____

LOGGED INTERVAL	START	STOP

LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1

RUN 2

SURFACE EQUIPMENT

GSR-U 616008
 WITM (EDTS)-A 1

DOWNHOLE EQUIPMENT

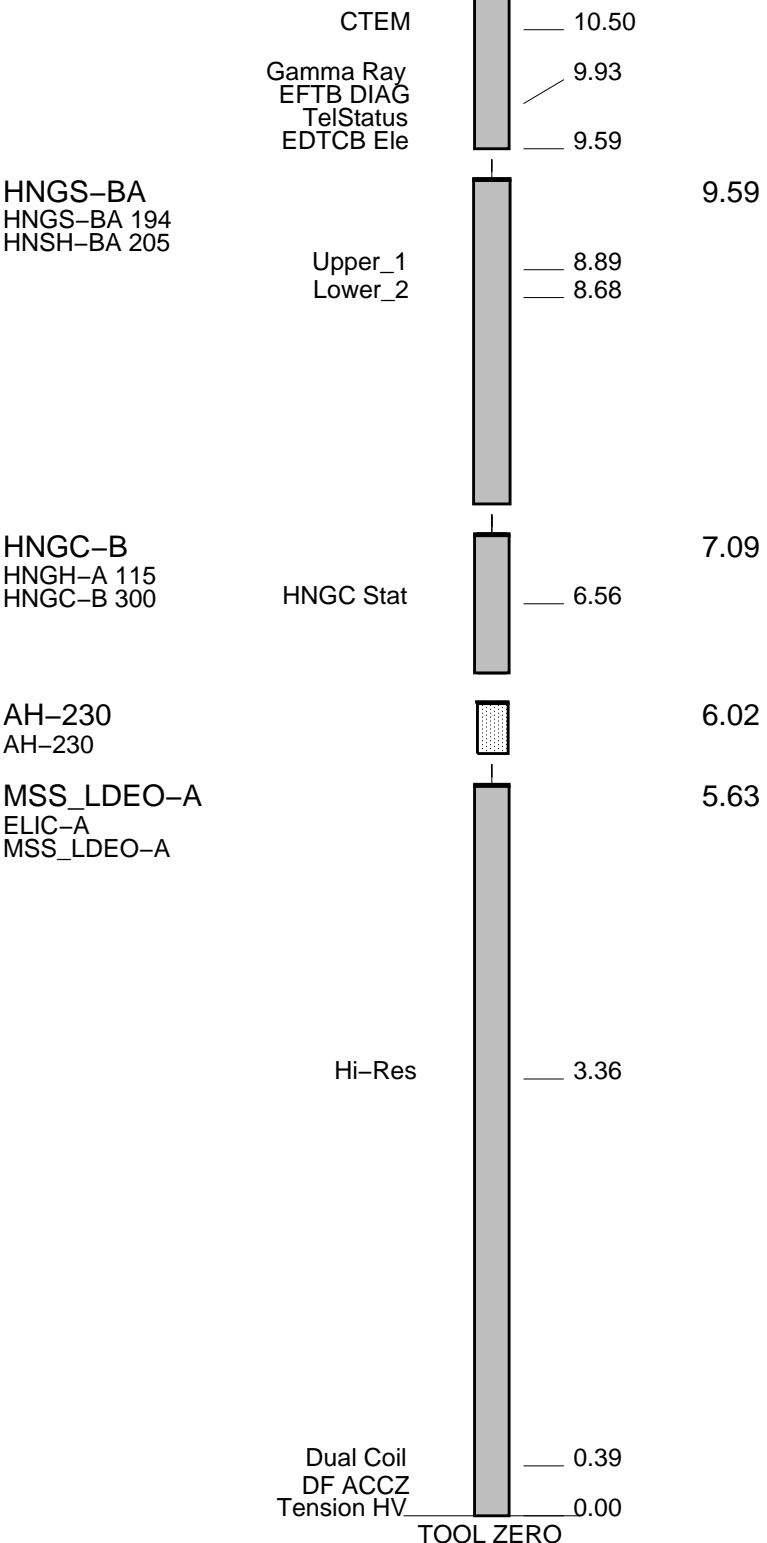
LEH-MT 101 12.53
 LEH-MT 101 101

MDSB_EDTC
 Mud Tempe

EDTC-B 11.57
 EDTC-B 0000



EDTH-B 8303
 EDTC-B 8317
 EDTG-A/B 8305



HNGS-BA
 HNGS-BA 194
 HNSH-BA 205

HNGC-B
 HNGH-A 115
 HNGC-B 300

AH-230
 AH-230

MSS_LDEO-A
 ELIC-A
 MSS_LDEO-A

MAXIMUM STRING DIAMETER 3.75 IN
 MEASUREMENTS RELATIVE TO TOOL ZERO
 ALL LENGTHS IN METERS

Production String	(in)	(M)	Well Schematic	(M)	(in)	Casing String
	OD	ID		MD	MD	

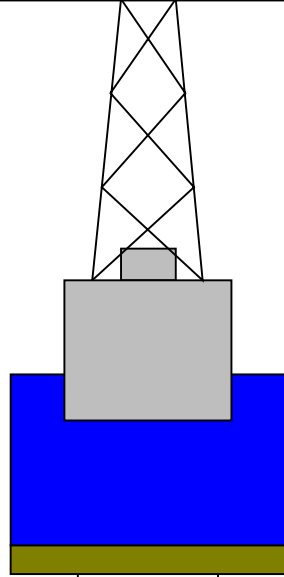
Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

-4200

-4200

-4189



4.1



0

4.1

84

9.875

Sea Floor

Open Hole

624

Total Depth

Input DLIS Files

MSS_LDEO_NGS_070PUP FN:94 23-Jun-2013 12:54 4402.1 M 4178.4 M

Output DLIS Files

DEFAULT MSS_LDEO_NGS_083PUP FN:107 PRODUCER 23-Jun-2013 14:56 202.1 M -19.7 M

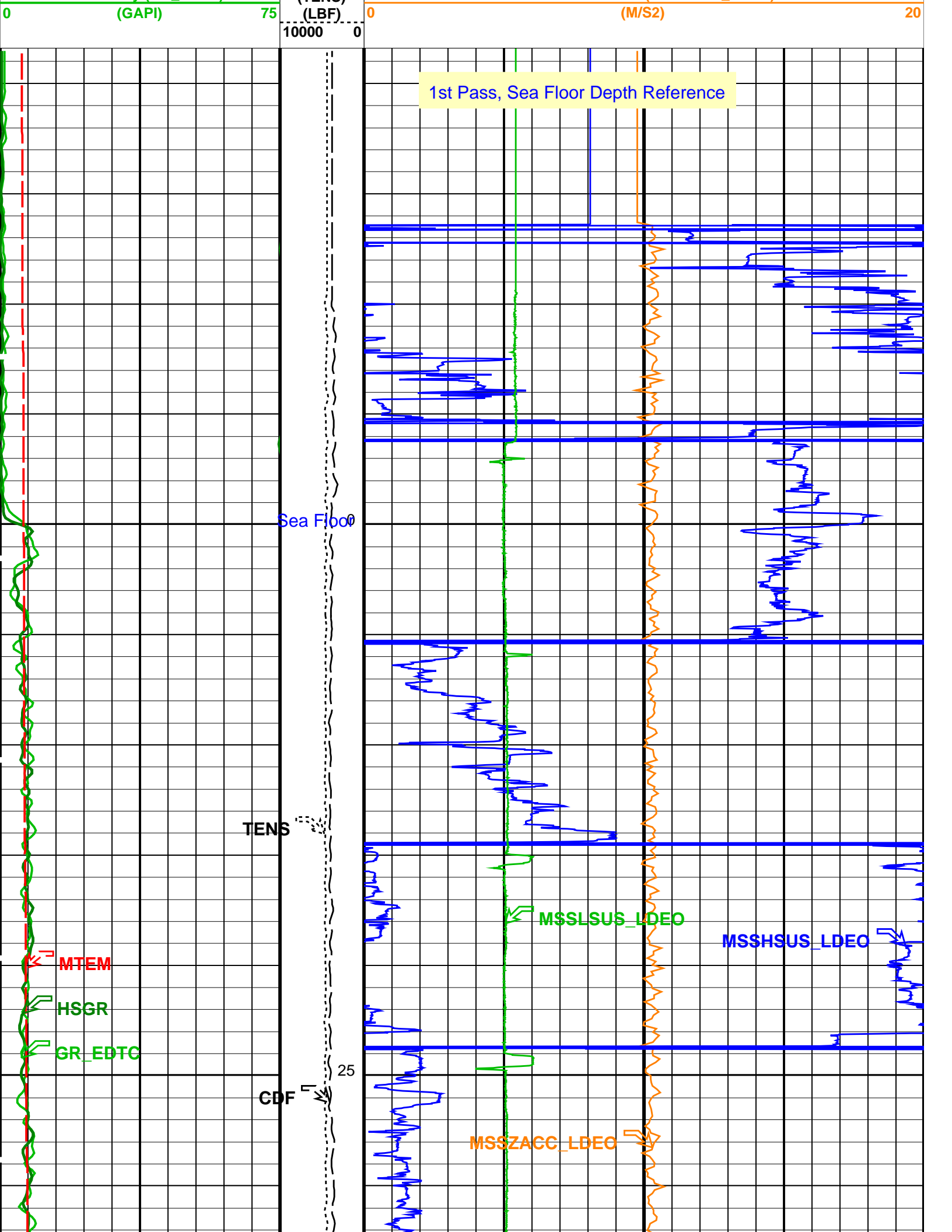
OP System Version: 19C0-187

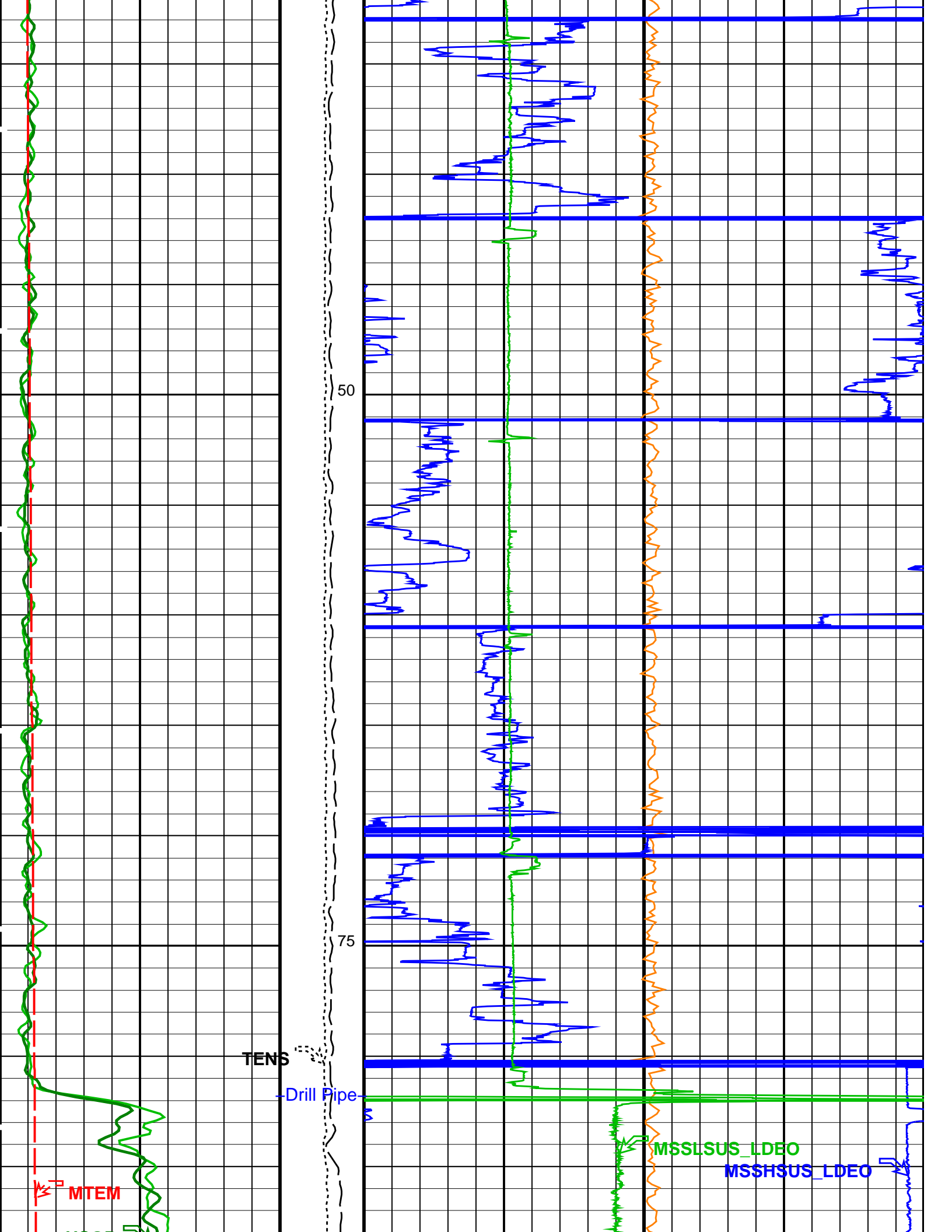
MSS_LDEO-A 19C0-187 HNGC-B 19C0-187
 HNGS-BA 19C0-187 EDTC-B SKK-5169-EDTCB

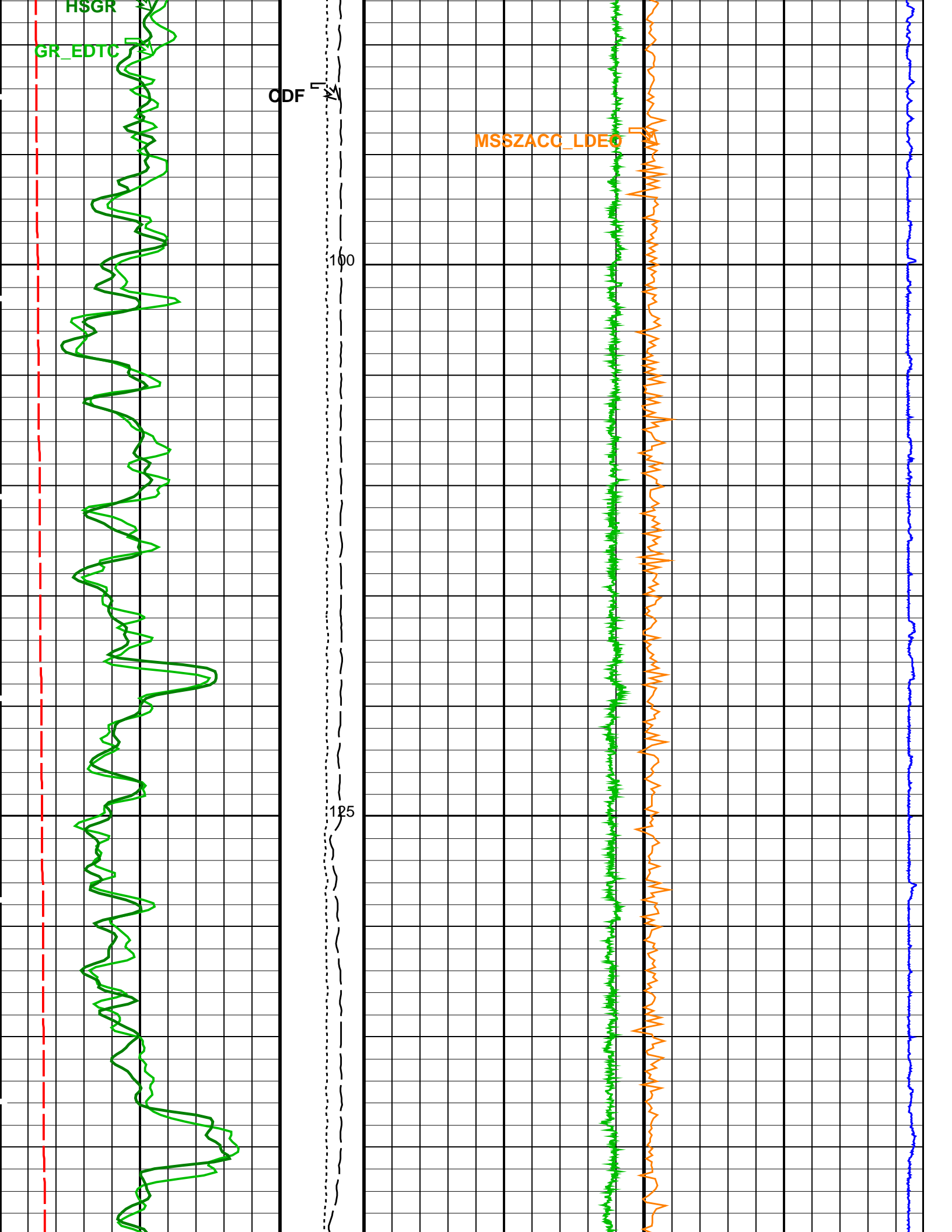
PIP SUMMARY

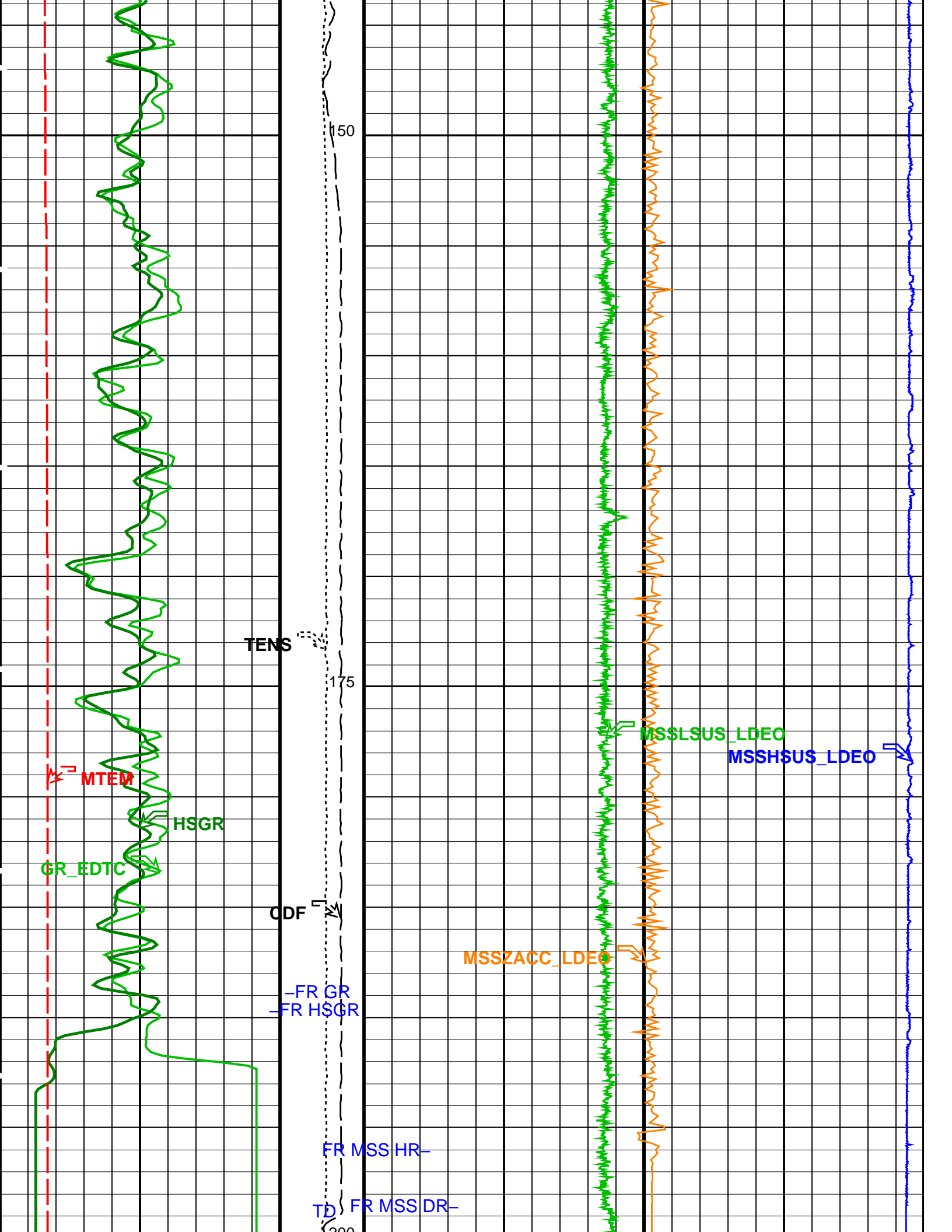
Time Mark Every 60 S

<p style="color: green; text-align: center;">HNGS Spectroscopy Gamma Ray (HSGR)</p> <p style="color: green; text-align: center;">0 (GAPI) 75</p>		<p style="color: green; text-align: center;">Dual-Coil Susceptibility (MSSLSUS_LDEO)</p> <p style="color: green; text-align: center;">-20000 (PPM) 20000</p>
<p style="color: red; text-align: center;">Mud temperature (MTEM)</p> <p style="color: red; text-align: center;">0 (DEGC) 50</p>	<p style="text-align: center;">Calibrated Downhole Force (CDF) (LBF)</p> <p style="text-align: center;">2000 0</p>	<p style="color: blue; text-align: center;">High-Res Susceptibility (MSSHSUS_LDEO)</p> <p style="color: blue; text-align: center;">-10000 (PPM) 90000</p>
<p style="color: green; text-align: center;">Gamma Ray (GR EDTC)</p>	<p style="text-align: center;">Tension (TENS)</p>	<p style="color: orange; text-align: center;">Axial Acceleration (MSSZACC_LDEO)</p>









Gamma Ray (GR_EDTC) (GAPI) 0 75		Tension (TENS) (LBF) 10000 0	Axial Acceleration (MSSZACC_LDEO) (M/S2) 0 20	
Mud temperature (MTEM) (DEGC) 0 50		Calibrated Downhole Force (CDF) (LBF) 2000 0	High-Res Susceptibility (MSSHSUS_LDEO) (PPM) -10000 90000	
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI) 0 75			Dual-Coil Susceptibility (MSSLSUS_LDEO) (PPM) -20000 20000	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
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	0.00040765
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	1.01265
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.00074
EDTC-B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN
GCSE	Generalized Caliper Selection	BS
System and Miscellaneous		
BS	Bit Size	9.875 IN
DFD	Drilling Fluid Density	1.03 G/C3
DO	Depth Offset for Playback	-4200.0 M
PP	Playback Processing	OFF

Format: MSS_Logging

Vertical Scale: 1:200

Graphics File Created: 23-Jun-2013 14:56

OP System Version: 19C0-187

MSS_LDEO-A	19C0-187	HNGC-B	19C0-187
HNGS-BA	19C0-187	EDTC-B	SKK-5169-EDTCB

Input DLIS Files

MSS_LDEO_NGS_070PUP	FN:94	23-Jun-2013 12:54	4402.1 M	4178.4 M
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Output DLIS Files

DEFAULT	MSS_LDEO_NGS_083PUP	FN:107	PRODUCER	23-Jun-2013 14:56
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Input DLIS Files

MSS_LDEO_NGS_069PUP

FN:93

23-Jun-2013 12:52

4402.8 M

4258.1 M

Output DLIS Files

DEFAULT

MSS_LDEO_NGS_082PUP

FN:106

PRODUCER

23-Jun-2013 14:55

202.8 M

58.1 M

OP System Version: 19C0-187

MSS_LDEO-A

19C0-187

HNGC-B

19C0-187

HNGS-BA

19C0-187

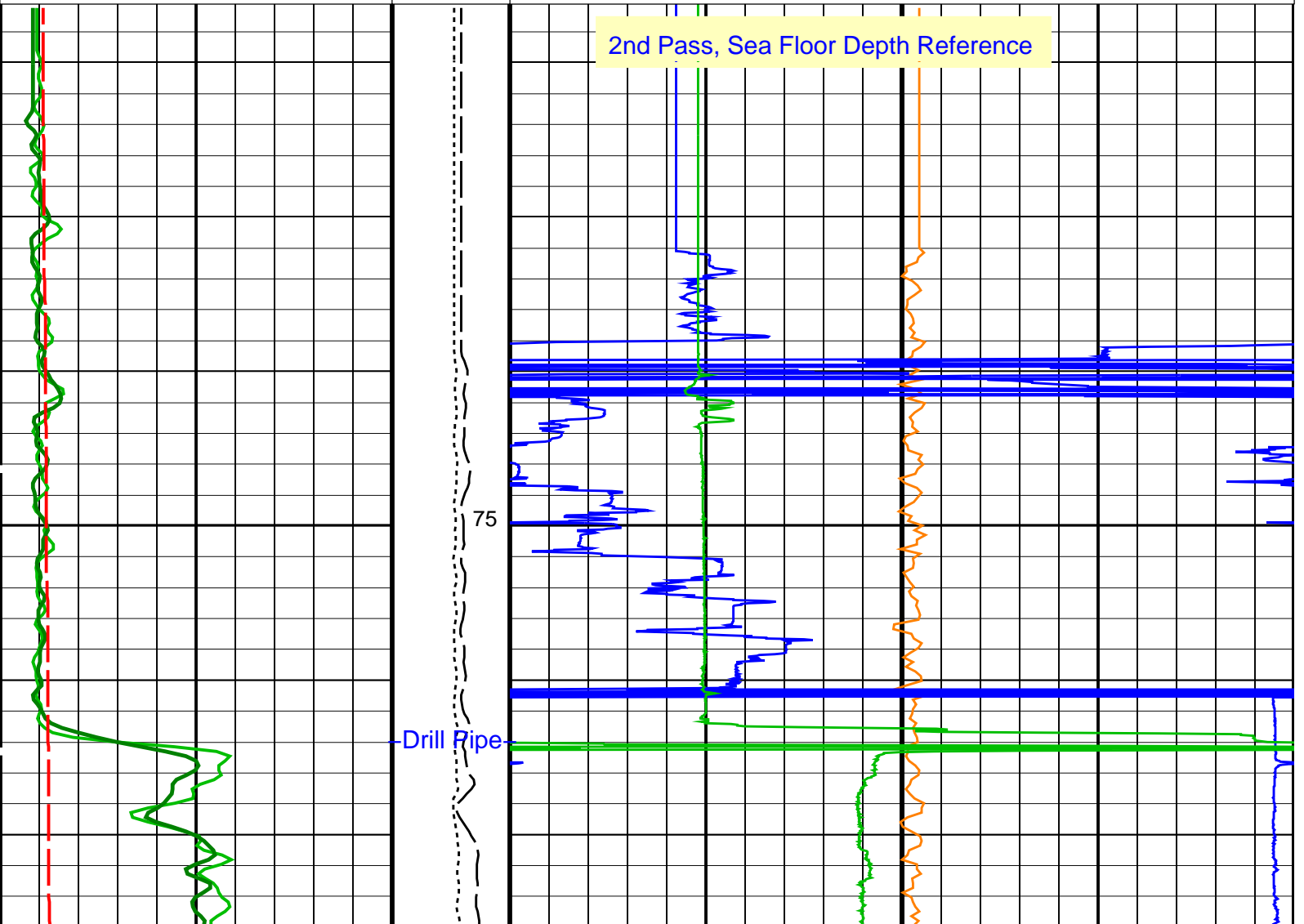
EDTC-B

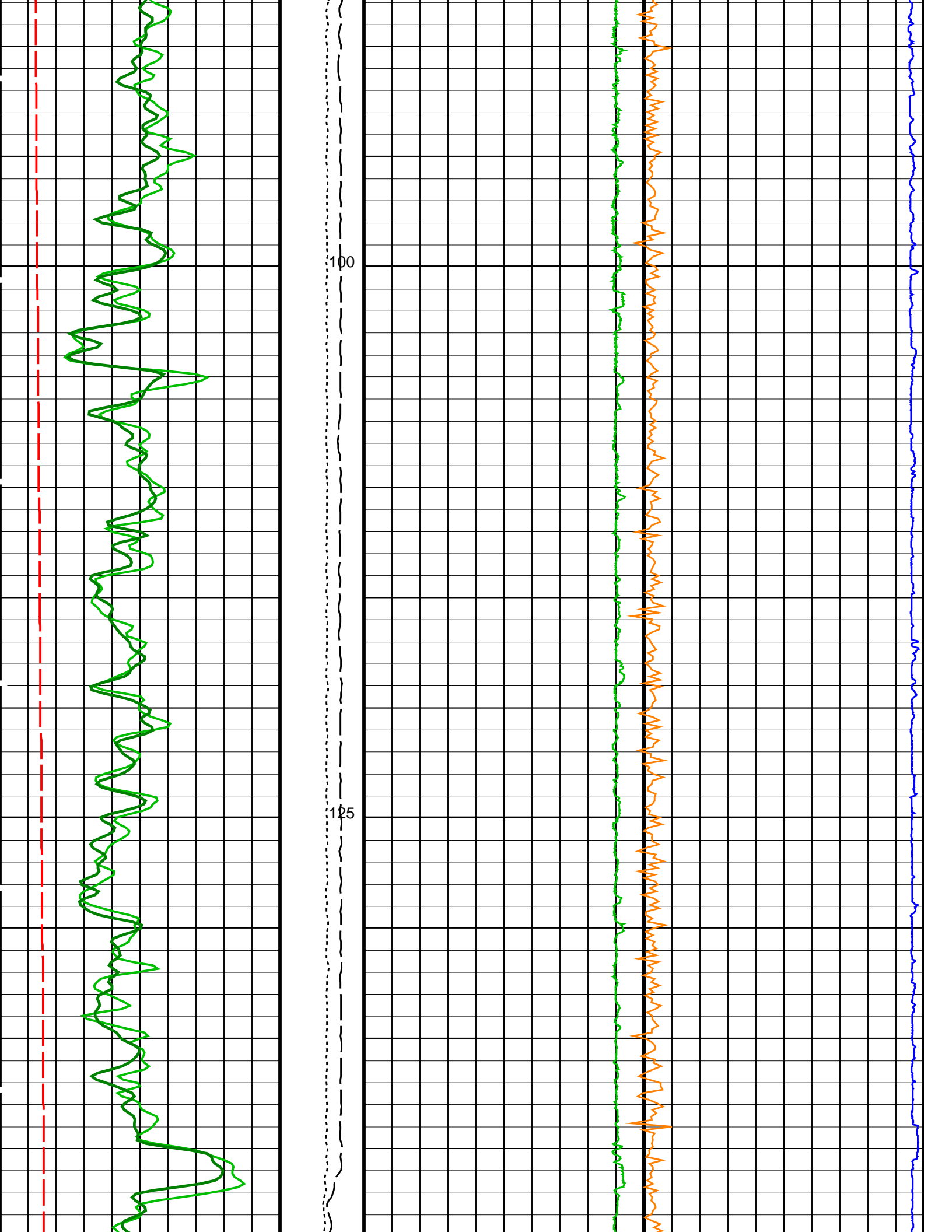
SKK-5169-EDTCB

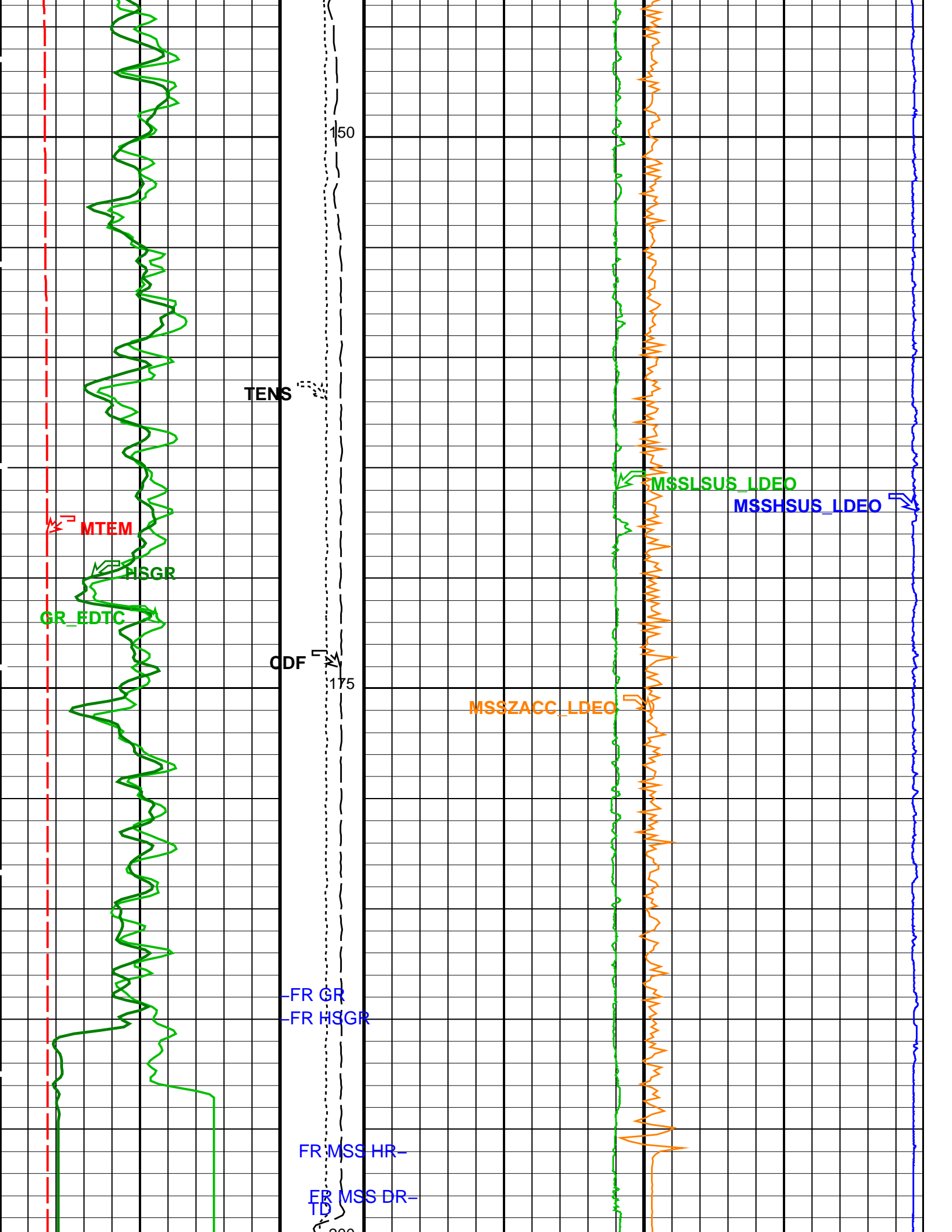
PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR) (GAPI) 0 75		Calibrated Downhole Force (CDF) (LBF) 2000 0	Dual-Coil Susceptibility (MSSLSUS_LDEO) (PPM) -20000 20000	
Mud temperature (MTEM) (DEGC) 0 50			High-Res Susceptibility (MSSHSUS_LDEO) (PPM) -10000 90000	
Gamma Ray (GR_EDTC) (GAPI) 0 75		Tension (TENS) (LBF) 10000 0	Axial Acceleration (MSSZACC_LDEO) (M/S2) 0 20	







2nd Pass, Sea Floor Depth Reference

Gamma Ray (GR_EDTC) (GAPI)	75	Tension (TENS) (LBF)	0	Axial Acceleration (MSSZACC_LDEO) (M/S2)	20
		10000	0		
Mud temperature (MTEM) (DEGC)	50	Calibrated Downhole Force (CDF) (LBF)	-10000	High-Res Susceptibility (MSSHSUS_LDEO) (PPM)	90000
		2000	0		
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	75		-20000	Dual-Coil Susceptibility (MSSLSUS_LDEO) (PPM)	20000

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
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	0.00040765
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	1.01265
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.00074
EDTC-B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN
GCSE	Generalized Caliper Selection	BS
System and Miscellaneous		
BS	Bit Size	9.875 IN
DFD	Drilling Fluid Density	1.03 G/C3
DO	Depth Offset for Playback	-4200.0 M
PP	Playback Processing	OFF

Format: MSS_Logging

Vertical Scale: 1:200

Graphics File Created: 23-Jun-2013 14:55

OP System Version: 19C0-187

MSS_LDEO-A	19C0-187	HNGC-B	19C0-187
HNGS-BA	19C0-187	EDTC-B	SKK-5169-EDTCB

Input DLIS Files

MSS_LDEO_NGS_069PUP	FN:93	23-Jun-2013 12:52	4402.8 M	4258.1 M
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Output DLIS Files

DEFAULT	MSS_LDEO_NGS_082PUP	FN:106	PRODUCER	23-Jun-2013 14:55
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Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check							
Master: 22–May–2013 20:18 Before: 5–Jun–2013 5:31 After: 21–Jun–2013 15:44							
Na 511 Peak Loc	40.00	39.77	39.78	39.85	0.06499	1.000	
Na 511 Peak Res	15.50	15.23	15.40	12.72	-2.674	2.000	%
High Voltage	1150	1161	1143	1151	7.681	N/A	V
Na 1785 Peak Loc	142.6	143.9	143.2	141.3	-1.901	7.000	
Na 1785 Peak Res	8.500	7.558	8.088	7.759	-0.3289	2.000	%
Temperature	15.50	16.49	14.24	16.34	2.107	N/A	DEGC
Na Count Rate	45.00	14.90	15.37	14.04	-1.332	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check							
Master: 22–May–2013 20:18 Before: 5–Jun–2013 5:31 After: 21–Jun–2013 15:44							
Na 511 Peak Loc	40.00	39.67	39.68	39.51	-0.1639	1.000	
Na 511 Peak Res	15.50	15.00	15.05	15.43	0.3853	2.000	%
High Voltage	1150	1082	1074	1085	11.62	N/A	V
Na 1785 Peak Loc	142.6	141.4	140.3	143.0	2.653	7.000	
Na 1785 Peak Res	8.500	9.134	8.027	9.053	1.026	2.000	%
Temperature	15.50	16.94	14.41	18.12	3.704	N/A	DEGC
Na Count Rate	45.00	14.58	15.20	14.08	-1.128	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2							
Master: 22–May–2013 20:18 Before: 5–Jun–2013 5:31 After: 21–Jun–2013 15:44							
Coincidence Count Rate Ratio	1.000	1.024	1.014	0.9996	-0.01401	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration							
Master: 22–May–2013 20:18							
Na 511 Peak Set Point	40.00	41.00	---	---	---	---	
Th Peak Loc	209.6	211.4	---	---	---	---	
Th Peak Res	7.000	6.972	---	---	---	---	%
Background Count Rate	142.5	18.97	---	---	---	---	CPS
Gain Ratio	1.000	1.011	---	---	---	---	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration							
Master: 22–May–2013 20:18							
Na 511 Peak Set Point	40.00	41.00	---	---	---	---	
Th Peak Loc	209.6	208.8	---	---	---	---	
Th Peak Res	7.000	6.474	---	---	---	---	%
Background Count Rate	142.5	18.20	---	---	---	---	CPS
Gain Ratio	1.000	1.001	---	---	---	---	
Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration							
Before: 21–Jun–2013 5:02							
EDTC Z–Axis Acceleration	9.810	N/A	9.801	N/A	N/A	N/A	M/S2
Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration							
Before: Calibration out of date 5–Jun–2013 5:18 After: Calibration not done							
Gamma Ray (Jig – Bkg)	156.4	N/A	156.4	N/A	N/A	0.09091	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	N/A	N/A	15.00	GAPI

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification

Primary Equipment:		
HNGC Cartridge	HNGC – B	300
Auxiliary Equipment:		
HNGC Housing	HNGH – A	115

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS – BA	194
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH – BA	205
Gamma Source Radioactive	GSR – U	616008

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.77	Master		15.23	Master		1161
Before		39.78	Before		15.40	Before		1143
After		39.85	After		12.72	After		1151
37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)		
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value
Master		143.9	Master		7.558	Master		16.49
Before		143.2	Before		8.088	Before		14.24
After		141.3	After		7.759	After		16.34
135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)		
Phase	Na Count Rate CPS	Value						
Master		14.90						
Before		15.37						
After		14.04						
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)								
Master: 22-May-2013 20:18			Before: 5-Jun-2013 5:31			After: 21-Jun-2013 15:44		

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.67	Master		15.00	Master		1082
Before		39.68	Before		15.05	Before		1074
After		39.51	After		15.43	After		1085
37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)		
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value
Master		141.4	Master		9.134	Master		16.94
Before		140.3	Before		8.027	Before		14.41
After		143.0	After		9.053	After		18.12
135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)		
Phase	Na Count Rate CPS	Value						
Master		14.58						
Before		15.20						
After		14.08						
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)								
Master: 22-May-2013 20:18			Before: 5-Jun-2013 5:31			After: 21-Jun-2013 15:44		

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		1.024
Before		1.014
After		0.9996
0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		
Master: 22-May-2013 20:18		
Before: 5-Jun-2013 5:31		
After: 21-Jun-2013 15:44		

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 1 Calibration

Phase	Na 511 Peak Set Point			Value	Phase	Th Peak Loc			Value	Phase	Th Peak Res %			Value
Master				41.00	Master				211.4	Master				6.972
	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				18.97	Master				1.011					
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)			0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)						

Master: 22-May-2013 20:18

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				208.8	Master				6.474
	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				18.20	Master				1.001					
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)			0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)						

Master: 22-May-2013 20:18

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:

EDTC Gamma Ray Detector
Enhanced DTS Cartridge

EDTG - A/B 8305
EDTC - B 8317

Auxiliary Equipment:

EDTC Housing

EDTH - B 8303

Company: **Lamont Doherty Earth Observatory**

Schlumberger

Well: **Expedition 341, Site U1417E**

Field: **Southern Alaska Margin Tectonics**

Rig: **JOIDES Resolution**

Ocean: **Pacific**

Magnetic Susceptibility Sonde
Deep Reading and High Resolution
Gamma Ray