

Company: Santos

Well: Netherby 1

Field: Gas / Oil Exploration

Rig: Ocean Patriot Country: Australia

HRLT-PEX-HNGS-MSI
Spectrometry
Scale 1:500

Rig: Ocean Patriot
Field: Gas / Oil Exploration
Location: 01CAS3D
Well: Netherby 1
Company: Santos

LOCATION		Elev.: D.F. 20.8 m G.L. -66.1 m
01CAS3D		
INL-6790 XLN-3484		
Olway Basin Vic/P44		
Permanent Datum:	MSL	Elev.: 0 m
Log Measured From:	D.F.	20.8 m above Perm. Datum
Drilling Measured From:	D.F.	
State: Victoria	Max. Well Deviation 35 deg	Longitude 142° 38' 25.745" E Latitude 38° 40' 48.578" S

Logging Date 27-Jul-2008

Run Number 1

Depth Driller 1870 m

Schlumberger Depth TD not tagged

Bottom Log Interval 1785 m

Top Log Interval 1730 m

Casing Driller Size @ Depth 13.375 in @ 642.2 m

Casing Schlumberger 643.5 m

Bit Size 12.250 in

Type Fluid In Hole KCL

Density 1.33 g/cm3 59 s

Fluid Loss 3.9 cm3 8.7

Source Of Sample Mud Pit

RM @ Measured Temperature 0.112 ohm.m @ 20 degC

RMF @ Measured Temperature 0.089 ohm.m @ 20 degC

RMC @ Measured Temperature 0.134 ohm.m @ 22 degC

Source RMF RMC Pressed

RM @ MRT RMF @ MRT 0.053 @ 66 0.042 @ 66

Maximum Recorded Temperatures 66 degC 66

Circulation Stopped 27-Jul-2008 11:00

Logger On Bottom 27-Jul-2008 21:00

Unit Number 1909 AUSL

Recorded By Y.Zhuang / A.Ives

Witnessed By J.Pitman / D. Adderley








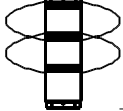





Run 1

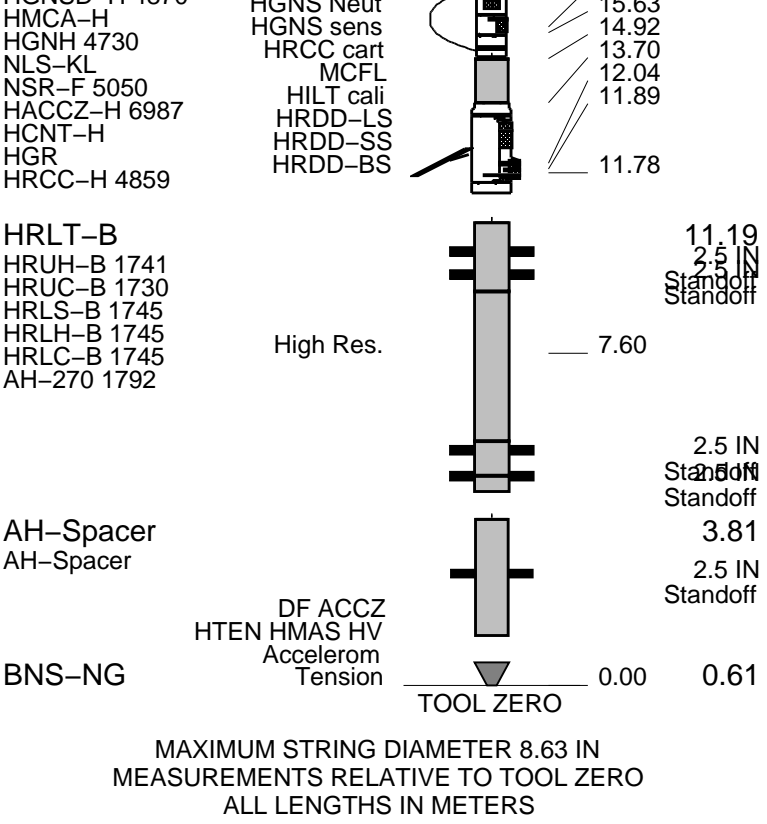
Run 2

Run 3

OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool string run with 2.5 in standoffs on HRLT, MSIP.	
HGNS eccentered using bowspring.	
Platform express run in standard reslution mode.	
Neutron porosity correction applied: Holesize correction using caliper, mud weight, pressure temperature	
formation salinity and borehole salinity correction.	

Glycol content 3.2 % by Vol, Calcium content 800 mg/L

DOWNHOLE EQUIPMENT				
LEH-QT 2809				38.89
SPA-A 753	SP SPARC		37.57	38.00
AH-369 796	Mud Tempe		37.13	37.57
EDTC-B	CTEM		36.07	37.13
EDTH-B 8434	Gamma Ray		35.50	2.5 IN
EDTC-B 8390	TelStatus		35.15	Standoff
MAPC-B	EDTCB Ele			35.15
MAPC-BA 8198				
ECH-SF 8198				
MAMS-BA 8201				
	MAMS-PS		30.45	2.5 IN
				Standoff
MAXS-B				28.74
MASS-BA 8157				
MAXS-BA 8157				
	MAXS-PS		22.57	
AH-107 2840				22.57
HNGS-BA	Upper_1		21.26	21.96
HNGS-BA 19	Lower_2		21.05	
HNSH-BA 47				
HNGC-B	HNGC Stat		18.93	19.46
HNGH-A 47				
AH-107 1817	HGNS HTEM		17.79	18.39
	HMCA			
HILTH-FTB	HGNS Gamm		17.56	17.79
HGNSD-H 4870	HGNS Neut		15.78	
	HGNS Neut		15.63	

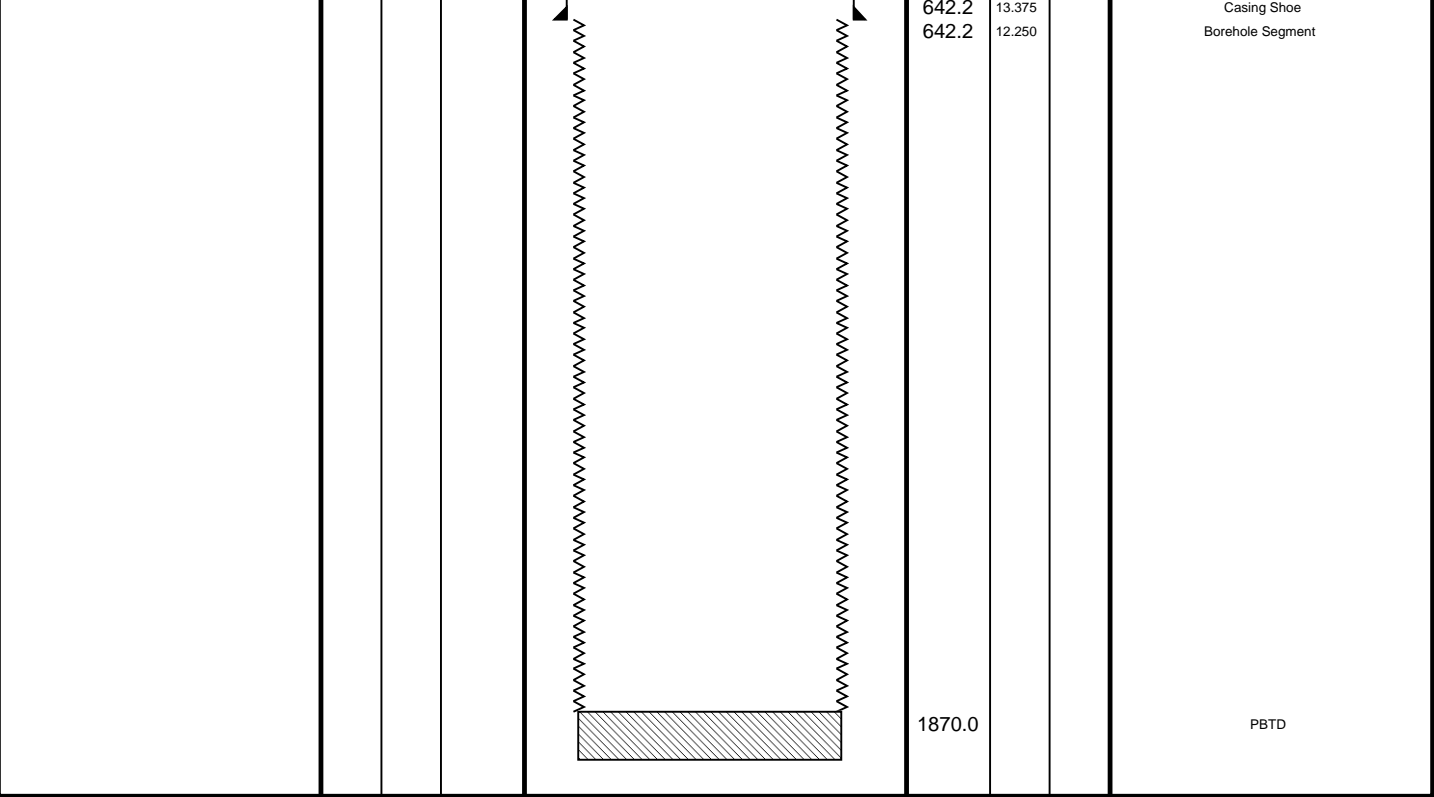


Client: Santos
 Well: Netherby 1
 Field: Gas/Oil Exploration
 State: Victoria
 Country: Australia

Rig Name: Ocean Patriot
 Reference Datum: Mean Sea Level
 Elevation: 0.0 m

Drawing Date: 7/30/2008

Production String	(in)			Well Schematic	(m)			Casing String
	OD	ID	MD		MD	OD	ID	
Kelly Bushing Elevation Derrick Floor Elevation Mean Sea Level			0.0					Casing String
			0.0					
			20.8					
					13.375			



Main Pass
1:500

MAXIS Field Log

Company: Santos Well: Netherby 1

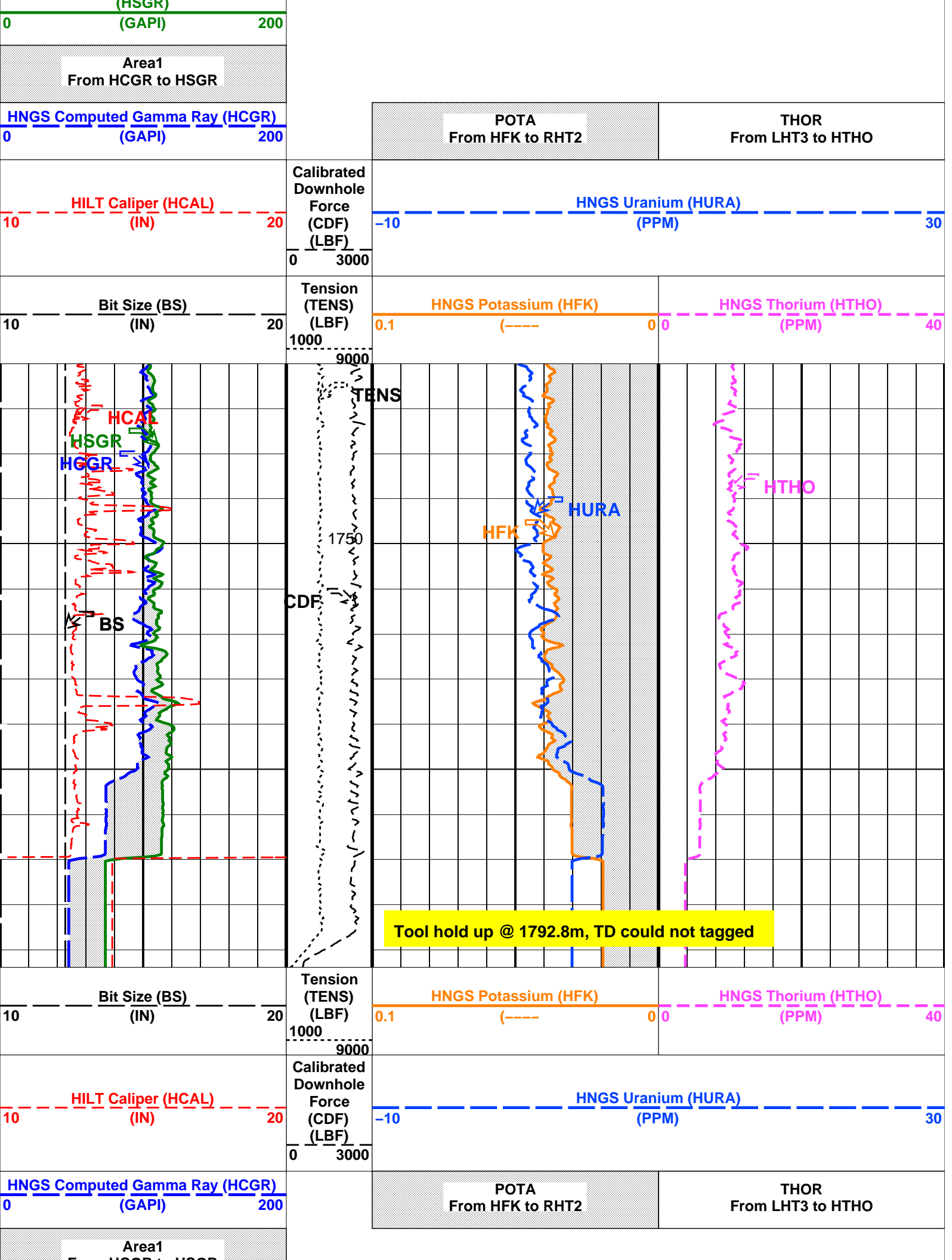
Input DLIS Files				
HRLA_TLD_MCFL_CNL_068PUP	FN:120	30-Jul-2008 09:27	1796.9 M	633.4 M

OP System Version: 15C0-309			
MCM			
HRLT	15C0-309	HILTHD	SRPC-3582-Q1_2008_OP15
HNGC-B	15C0-309	HNGS-BA	15C0-309
MAXS	SKK-3562-MAST	MAPC	SKK-3562-MAST
EDTCB	SKK-3493-EDTCB	SPAA	15C0-309

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray



PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
HRLT-B: High Resolution Laterolog Array - E			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	HCAL	
HILTH-FTB: High resolution Integrated Logging Tool-DTS			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	HCAL	
HNCS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNCS Detector 1 Barite Constant	1.000	
BAR2	HNCS Detector 2 Barite Constant	1.000	
BHK	HNCS Borehole Potassium Correction Concentration	0.000	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0.000	in
CSD2	Outer Casing Outer Diameter	0.000	in
CSW1	Inner Casing Weight	0.000	lbm/ft
CSW2	Outer Casing Weight	0.000	lbm/ft
DBCC	HNCS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	HCAL	
H1P	HNCS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNCS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNCS Borehole Potassium Running Average	0.026	
HALF	HNCS Alpha Filter Length	60.000	in
HCRB	HNCS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNCS Processing Enable	YES	
S1BI	HNCS Detector 1 Calibration Bismuth Count Rate	0.400	1/s
S2BI	HNCS Detector 2 Calibration Bismuth Count Rate	1.300	1/s
SGRC	HNCS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNCS Detector 1 Variable Barite Factor Running Average	0.961	
VBA2	HNCS Detector 2 Variable Barite Factor Running Average	0.951	
MAPC-B: Multimode Array Sonic Power Cartridge			
BHS	Borehole Status	OPEN	
BS	Bit Size	12.250	in
GCSE	Generalized Caliper Selection	HCAL	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	HCAL	
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	HCAL	
System and Miscellaneous			
DFD	Drilling Fluid Density	1.330	g/cm3

Format: HNCS Ratios_500

Vertical Scale: 1:500

Graphics File Created: 31-Jul-2008 17:26

OP System Version: 15C0-309

MCM

HRLT	15C0-309	HILTHD	SRPC-3582-Q1_2008_OP15
HNGC-B	15C0-309	HNCS-BA	15C0-309
MAXS	SKK-3562-MAST	MAPC	SKK-3562-MAST
EDTCB	SKK-3493-EDTCB	SPAA	15C0-309

Input DLIS Files

HRLA_TLD_MCFL_CNL_068PUP

FN:120

30-Jul-2008 09:27

1796.9 M

633.4 M

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
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High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01

Before: 27-Jul-2008 20:28

HRLT M0-M1 Voltage Plus – 0	0	N/A	-318.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 1	0	N/A	-349.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 2	0	N/A	-355.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 3	0	N/A	-342.5	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 4	0	N/A	-323.0	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 5	0	N/A	-330.2	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 6	0	N/A	310.3	N/A	N/A	9.681	UV
HRLT M0-M1 Voltage Plus – 7	0	N/A	-322.7	N/A	N/A	9.681	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT M12

Before: 27-Jul-2008 20:28

HRLT M1-M2 Voltage Plus – 0	0	N/A	1749	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 1	0	N/A	1917	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 2	0	N/A	1944	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 3	0	N/A	1875	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 4	0	N/A	1770	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 5	0	N/A	1811	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 6	0	N/A	-1711	N/A	N/A	53.42	UV
HRLT M1-M2 Voltage Plus – 7	0	N/A	1781	N/A	N/A	53.42	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT M23

Before: 27-Jul-2008 20:28

HRLT M2-M3 Voltage Plus – 0	0	N/A	1731	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 1	0	N/A	1902	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 2	0	N/A	1931	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 3	0	N/A	1869	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 4	0	N/A	1760	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 5	0	N/A	1803	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 6	0	N/A	-1686	N/A	N/A	53.42	UV
HRLT M2-M3 Voltage Plus – 7	0	N/A	1781	N/A	N/A	53.42	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT V34

Before: 27-Jul-2008 20:28

HRLT A3-A4 Voltage Plus – 0	0	N/A	68550	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 1	0	N/A	75660	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 2	0	N/A	77030	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 3	0	N/A	74690	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 4	0	N/A	70140	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 5	0	N/A	71770	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 6	0	N/A	-66110	N/A	N/A	2100	UV
HRLT A3-A4 Voltage Plus – 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT V45

Before: 27-Jul-2008 20:28

HRLT A4-A5 Voltage Plus – 0	0	N/A	68390	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 1	0	N/A	75520	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 2	0	N/A	76890	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 3	0	N/A	74520	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 4	0	N/A	69980	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 5	0	N/A	71600	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 6	0	N/A	-65990	N/A	N/A	2100	UV
HRLT A4-A5 Voltage Plus – 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT V56

Before: 27-Jul-2008 20:28

HRLT A5-A6 Voltage Plus – 0	0	N/A	68540	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 1	0	N/A	75840	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 2	0	N/A	77150	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 3	0	N/A	74750	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 4	0	N/A	70130	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 5	0	N/A	71730	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 6	0	N/A	-66280	N/A	N/A	2100	UV
HRLT A5-A6 Voltage Plus – 7	0	N/A	70000	N/A	N/A	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT VTP

Before: 27-Jul-2008 20:28

HRLT Torpedo-M0 Voltage - 0	0	N/A	-68100	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 1	0	N/A	-75530	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 2	0	N/A	-76940	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-74640	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-70130	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-71750	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	65960	N/A	N/A	2100	UV
HRLT Torpedo-M0 Voltage - 7	0	N/A	-70000	N/A	N/A	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT VBD

Before: 27-Jul-2008 20:28

HRLT Bridle#9-M0 Voltage - 0	0	N/A	-68030	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 1	0	N/A	-75300	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 2	0	N/A	-76720	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 3	0	N/A	-74460	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 4	0	N/A	-70020	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 5	0	N/A	-71680	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 6	0	N/A	65750	N/A	N/A	2100	UV
HRLT Bridle#9-M0 Voltage - 7	0	N/A	-70000	N/A	N/A	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT ISO

Before: 27-Jul-2008 20:28

HRLT Source Current Plus - 0	0	N/A	283.8	N/A	N/A	8.520	UA
HRLT Source Current Plus - 1	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 2	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 3	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 4	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 5	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 6	0	N/A	281.1	N/A	N/A	8.520	UA
HRLT Source Current Plus - 7	0	N/A	281.1	N/A	N/A	8.520	UA

High Resolution Laterolog Array - B Wellsite Calibration - HRLT MV

Before: 27-Jul-2008 20:28

HRLT Vertical Voltage PI - 0	0	N/A	-320.1	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-344.0	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-348.2	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-334.2	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-311.9	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-334.2	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 6	0	N/A	318.4	N/A	N/A	9.681	UV
HRLT Vertical Voltage PI - 7	0	N/A	-322.7	N/A	N/A	9.681	UV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary

Before: 21-Jul-2008 22:31

BS Window Ratio	0.7367	N/A	0.7376	N/A	N/A	N/A	
BS Window Sum	29900	N/A	29850	N/A	N/A	N/A	CPS
SS Window Ratio	0.4671	N/A	0.4670	N/A	N/A	N/A	
SS Window Sum	13140	N/A	13130	N/A	N/A	N/A	CPS
LS Window Ratio	0.2938	N/A	0.2912	N/A	N/A	N/A	
LS Window Sum	1447	N/A	1440	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations

Before: 21-Jul-2008 22:31

BS PM High Voltage (Command)	1340	N/A	1337	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1757	N/A	1768	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1358	N/A	1356	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration

Before: 21-Jul-2008 22:31

BS Crystal Resolution	10.42	N/A	10.44	N/A	N/A	N/A	%
SS Crystal Resolution	10.00	N/A	10.03	N/A	N/A	N/A	%
LS Crystal Resolution	9.175	N/A	9.248	N/A	N/A	N/A	%

High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration

Before: 21-Jul-2008 22:36

Raw B0 Resistivity	3875	N/A	3894	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3839	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3840	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HILT Caliper Calibration

Before: 21-Jul-2008 22:32

HILT Caliper Zero Measurement	8.000	N/A	7.864	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.25	N/A	N/A	N/A	IN

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration

Before: 21-Jul-2008 22:25

Gamma Ray Background	30.00	N/A	4.556	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	169.3	N/A	169.3	N/A	N/A	15.39	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement

High resolution Integrated Logging Tool-DTS Wellsite Calibration – Ratio Measurement							
Master: 3-Jul-2008 14:20 Before: 21-Jul-2008 22:27							
CNTC Background	26.09	26.09	25.52	N/A	N/A	3.914	CPS
CFTC Background	25.45	25.45	25.41	N/A	N/A	3.818	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Accelerometer Calibration							
Before: 25-Jul-2008 17:35							
Z-Axis Acceleration	9.810	N/A	9.807	N/A	N/A	N/A	M/S2
High resolution Integrated Logging Tool-DTS Master Calibration – Inversion results							
Master: 3-Jul-2008 17:01							
Rho Aluminum	2.596	2.601	--	--	--	--	G/C3
Rho Magnesium	1.686	1.683	--	--	--	--	G/C3
Pe Aluminum	2.570	2.581	--	--	--	--	
Pe Magnesium	2.650	2.632	--	--	--	--	
High resolution Integrated Logging Tool-DTS Master Calibration – Deviation Summary							
Master: 3-Jul-2008 17:01							
BS Average Deviation	0	0.1075	--	--	--	--	%
BS Max Deviation	0	0.3697	--	--	--	--	%
SS Average Deviation	0	0.2752	--	--	--	--	%
SS Max Deviation	0	0.7185	--	--	--	--	%
LS Average Deviation	0	0.8851	--	--	--	--	%
LS Max Deviation	0	1.937	--	--	--	--	%
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check							
Master: 15-Jul-2008 13:39 Before: 1-Jul-2008 21:52							
Na 511 Peak Loc	40.00	38.59	38.57	N/A	N/A	1.000	
Na 511 Peak Res	15.50	14.88	14.86	N/A	N/A	2.000	%
High Voltage	1150	1127	1129	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	139.0	139.4	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.384	7.962	N/A	N/A	2.000	%
Temperature	15.50	11.79	14.39	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	37.90	37.39	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check							
Master: 15-Jul-2008 13:39 Before: 1-Jul-2008 21:52							
Na 511 Peak Loc	40.00	40.63	40.71	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.06	14.91	N/A	N/A	2.000	%
High Voltage	1150	1378	1381	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	146.6	146.5	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.733	8.625	N/A	N/A	2.000	%
Temperature	15.50	12.04	14.41	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	38.28	37.87	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2							
Master: 15-Jul-2008 13:39 Before: 1-Jul-2008 21:52							
Coincidence Count Rate Ratio	1.000	0.9810	0.9832	N/A	N/A	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration							
Master: 15-Jul-2008 13:34							
Na 511 Peak Set Point	40.00	40.00	--	--	--	--	
Th Peak Loc	209.6	208.6	--	--	--	--	
Th Peak Res	7.000	6.600	--	--	--	--	%
Background Count Rate	142.5	130.3	--	--	--	--	CPS
Gain Ratio	1.000	1.028	--	--	--	--	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration							
Master: 15-Jul-2008 13:34							
Na 511 Peak Set Point	40.00	42.00	--	--	--	--	
Th Peak Loc	209.6	211.4	--	--	--	--	
Th Peak Res	7.000	7.252	--	--	--	--	%
Background Count Rate	142.5	133.1	--	--	--	--	CPS
Gain Ratio	1.000	0.9896	--	--	--	--	
Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration							
Before: 25-Jul-2008 17:35							
EDTC Z-Axis Acceleration	9.810	N/A	9.857	N/A	N/A	N/A	M/S2
Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration							
Before: 21-Jul-2008 22:25							
Gamma Ray (Jig – Bkg)	150.9	N/A	150.9	N/A	N/A	13.72	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI



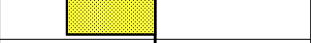

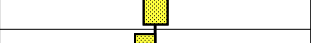


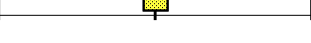
The GLS–VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :




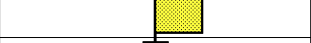
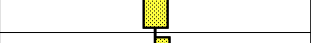


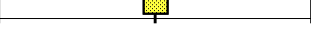
NCT–B Water Temperature 12.0 DEGC.
Thermal Housing Size 3.378 IN.
NSR–F serial number 5050

High Resolution Laterolog Array – B / Equipment Identification





Primary Equipment:		
HRLT Sonde	HRLS – B	1745
Auxiliary Equipment:		
HRLT lower Housing	HRLH – B	1745
HRLT Lower Cartridge	HRLC – B	1745
HRLT upper Housing	HRUH – B	1741
HRLT Upper Cartridge	HRUC – B	1730

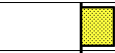
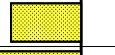






High Resolution Laterolog Array – B Wellsite Calibration							
HRLT M01							
Idx	Phase	HRLT M0–M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		–318.3	–322.7	–280.7	–379.7	
1	Before		–349.3	–322.7	–280.7	–379.7	
2	Before		–355.0	–322.7	–280.7	–379.7	
3	Before		–342.5	–322.7	–280.7	–379.7	
4	Before		–323.0	–322.7	–280.7	–379.7	
5	Before		–330.2	–322.7	–280.7	–379.7	
6	Before		310.3	322.7	379.7	280.7	
7	Before		–322.7	–322.7	–280.7	–379.7	
(Minimum) (Nominal) (Maximum)							








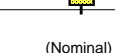
Before: 27–Jul–2008 20:28









High Resolution Laterolog Array – B Wellsite Calibration							
HRLT M12							
Idx	Phase	HRLT M1–M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		1749	1781	2095	1549	
1	Before		1917	1781	2095	1549	
2	Before		1944	1781	2095	1549	
3	Before		1875	1781	2095	1549	
4	Before		1770	1781	2095	1549	
5	Before		1811	1781	2095	1549	
6	Before		–1711	–1781	–1549	–2095	
7	Before		1781	1781	2095	1549	
(Minimum) (Nominal) (Maximum)							

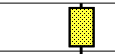




Before: 27–Jul–2008 20:28





High Resolution Laterolog Array – B Wellsite Calibration							
HRLT M23							
Idx	Phase	HRLT M2–M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		1731	1781	2095	1549	
1	Before		1902	1781	2095	1549	
2	Before		1931	1781	2095	1549	
							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VTP							
Idx	Phase	HRLT Torpedo-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68100	-70000	-60900	-82360	
1	Before		-75530	-70000	-60900	-82360	
2	Before		-76940	-70000	-60900	-82360	
3	Before		-74640	-70000	-60900	-82360	
4	Before		-70130	-70000	-60900	-82360	
5	Before		-71750	-70000	-60900	-82360	
6	Before		65960	70000	82360	60900	
7	Before		-70000	-70000	-60900	-82360	
		(Minimum) (Nominal) (Maximum)					
Before: 27-Jul-2008 20:28							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VBD							
Idx	Phase	HRLT Bridle#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68030	-70000	-60900	-82360	
1	Before		-75300	-70000	-60900	-82360	
2	Before		-76720	-70000	-60900	-82360	
3	Before		-74460	-70000	-60900	-82360	
4	Before		-70020	-70000	-60900	-82360	
5	Before		-71680	-70000	-60900	-82360	
6	Before		65750	70000	82360	60900	
7	Before		-70000	-70000	-60900	-82360	
		(Minimum) (Nominal) (Maximum)					
Before: 27-Jul-2008 20:28							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT ISO							
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum	
0	Before		283.8	284.0	334.1	247.0	
1	Before		281.1	281.1	330.7	244.4	
2	Before		281.1	281.1	330.7	244.4	
3	Before		281.1	281.1	330.7	244.4	
4	Before		281.1	281.1	330.7	244.4	
5	Before		281.1	281.1	330.7	244.4	
6	Before		281.1	281.1	330.7	244.4	
7	Before		281.1	281.1	330.7	244.4	
		(Minimum) (Nominal) (Maximum)					
Before: 27-Jul-2008 20:28							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT MV							
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-320.1	-322.7	-280.7	-379.7	
1	Before		-344.0	-322.7	-280.7	-379.7	
2	Before		-348.2	-322.7	-280.7	-379.7	
3	Before		-334.2	-322.7	-280.7	-379.7	
4	Before		-311.0	-322.7	-280.7	-379.7	

4	Before			-311.9	-322.7	-280.7	-379.7
5	Before			-334.2	-322.7	-280.7	-379.7
6	Before			318.4	322.7	379.7	280.7
7	Before			-322.7	-322.7	-280.7	-379.7
			(Minimum) (Nominal) (Maximum)				
Before: 27-Jul-2008 20:28							

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:

HILT high-Resolution Mechanical Sonde
HILT Rxo Gamma-ray Device
HILT Micro Cylindrically Focused Log Dev
GR Logging Source
HILT High Res. Control Cartridge
HILT Gamma-Ray Neutron Sonde-DTS
HGNS Gamma-Ray Device
HGNS Neutron Detector with Alpha Source

HRMS - H 4877
HRGD - H 4969
MCFL - H
GLS - J 5374
HRCC - H 4859
HGNS - H 4870
HGR -
HCNT - H







Auxiliary Equipment:

Neutron Calibration Tank
Gamma Source Radioactive
HGNS Housing

NCT - B
GSR - U 6003
HGNH - 4730

High resolution Integrated Logging Tool-DTS Wellsite Calibration




Stab Measurement Summary

Phase	BS Window Ratio		Value	Phase	SS Window Ratio		Value	Phase	LS Window Ratio		Value
Before			0.7376	Before			0.4670	Before			0.2912
0.6999 (Minimum) 0.7367 (Nominal) 0.7735 (Maximum)				0.4438 (Minimum) 0.4671 (Nominal) 0.4905 (Maximum)				0.2791 (Minimum) 0.2938 (Nominal) 0.3085 (Maximum)			
Phase	BS Window Sum CPS		Value	Phase	SS Window Sum CPS		Value	Phase	LS Window Sum CPS		Value
Before			29850	Before			13130	Before			1440
28400 (Minimum) 29900 (Nominal) 31390 (Maximum)				12480 (Minimum) 13140 (Nominal) 13800 (Maximum)				1375 (Minimum) 1447 (Nominal) 1519 (Maximum)			

Before: 21-Jul-2008 22:31

High resolution Integrated Logging Tool-DTS Wellsite Calibration




Photo-multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V			Value	Phase	SS PM High Voltage (Command) V			Value	Phase	LS PM High Voltage (Command) V			Value
Before				1337	Before				1768	Before				1356
1240 (Minimum)			1340 (Nominal)	1440 (Maximum)	1657 (Minimum)			1757 (Nominal)	1857 (Maximum)	1258 (Minimum)			1358 (Nominal)	1458 (Maximum)

Before: 21-Jul-2008 22:31

High resolution Integrated Logging Tool-DTS Wellsite Calibration




Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %			Value	Phase	SS Crystal Resolution %			Value	Phase	LS Crystal Resolution %			Value
Before				10.44	Before				10.03	Before				9.248
9.423 (Minimum)			10.42 (Nominal)	11.42 (Maximum)	9.003 (Minimum)			10.00 (Nominal)	11.00 (Maximum)	8.175 (Minimum)			9.175 (Nominal)	10.18 (Maximum)

Before: 21-Jul-2008 22:31

High resolution Integrated Logging Tool-DTS Wellsite Calibration



MCFL Calibration

Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3894	Before				3839	Before				3840
3565 (Minimum)			3875 (Nominal)	4185 (Maximum)	3524 (Minimum)			3830 (Nominal)	4136 (Maximum)	3524 (Minimum)			3830 (Nominal)	4136 (Maximum)

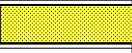


Before: 21-Jul-2008 22:36





High resolution Integrated Logging Tool-DTS Wellsite Calibration

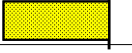
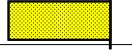
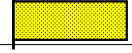
HILT Caliper Calibration


Phase	HILT Caliper Zero Measurement IN		Value	Phase	HILT Caliper Plus Measurement IN		Value
Before			7.864	Before			12.25





6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)	9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)
Before: 21-Jul-2008 22:32					



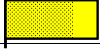



High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Detector Calibration											
Phase	Gamma Ray Background GAPI		Value	Phase	Gamma Ray (Jig - Bkg) GAPI		Value	Phase	Gamma Ray (Calibrated) GAPI		Value
Before			4.556	Before			169.3	Before			165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		153.9 (Minimum)	169.3 (Nominal)	184.7 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)
Before: 21-Jul-2008 22:25											

High resolution Integrated Logging Tool–DTS Wellsite Calibration											
Zero Measurement											
Phase		CNTC Background CPS		Value	Phase		CFTC Background CPS		Value		
Master				26.09	Master				25.45		
Before				25.52	Before				25.41		
5.000 (Minimum)		26.09 (Nominal)		40.00 (Maximum)	5.000 (Minimum)		25.45 (Nominal)		40.00 (Maximum)		
Master: 3–Jul–2008 14:20						Before: 21–Jul–2008 22:27					

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Ratio Measurement											
Phase	Thermal Near Corr. (Tank) CPS		Value	Phase	Thermal Far Corr. (Tank) CPS		Value	Phase	CNTC/CFTC (Tank)		Value
Master			5058	Master			2075	Master			2.438
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 3-Jul-2008 14:20											

High resolution Integrated Logging Tool-DTS Wellsite Calibration			
Accelerometer Calibration			
Phase	Z-Axis Acceleration M/S2	Value	
Before		9.807	
	9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)
Before: 25-Jul-2008 17:35			

High resolution Integrated Logging Tool-DTS Master Calibration											
Inversion results											
Phase	Rho Aluminum G/C3			Value	Phase	Rho Magnesium G/C3			Value		
Master				2.601	Master				1.683		
	2.586 (Minimum)	2.596 (Nominal)	2.606 (Maximum)			1.676 (Minimum)	1.686 (Nominal)	1.696 (Maximum)			
Phase	Pe Aluminum			Value	Phase	Pe Magnesium			Value		
Master				2.581	Master				2.632		
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)			2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)			
Master: 3-Jul-2008 17:01											

High resolution Integrated Logging Tool-DTS Master Calibration											
Deviation Summary											
Phase	BS Average Deviation %		Value	Phase	SS Average Deviation %		Value	Phase	LS Average Deviation %		Value
Master			0.1075	Master			0.2752	Master			0.8851
	-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)		-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)		-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)
Phase	BS Max Deviation %		Value	Phase	SS Max Deviation %		Value	Phase	LS Max Deviation %		Value
Master			0.3697	Master			0.7185	Master			1.937
	-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)		-2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)		-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)
Master: 3-Jul-2008 17:01											

High resolution Integrated Logging Tool-DTS Master Calibration							
Zero Measurement							
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value

Master		26.09	Master		25.45
5.000 (Minimum)	26.09 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	25.45 (Nominal)	40.00 (Maximum)
Master: 3-Jul-2008 14:20					



High resolution Integrated Logging Tool–DTS Master Calibration											
Tank Measurement											
Phase	Thermal Near Corr. (Tank) CPS		Value	Phase	Thermal Far Corr. (Tank) CPS		Value	Phase	CNTC/CFTC (Tank)		Value
Master	<div><div></div></div>		5058	Master	<div><div></div></div>		2075	Master	<div><div></div></div>		2.438
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)
Master: 3–Jul–2008 14:20											



Hostile Natural Gamma Ray Cartridge – B / Equipment Identification		
Primary Equipment: HNGC Cartridge	HNGC – B	221
Auxiliary Equipment: HNGC Housing	HNGH – A	47

Hostile Natural Gamma Ray Sonde / Equipment Identification		
Primary Equipment: HNGS Sonde	HNGS – BA	19
Auxiliary Equipment: HNGS Sonde Housing	HNSH – BA	47
Gamma Source Radioactive	GSR – U	6003






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	<div><div></div></div>		38.59	Master	<div><div></div></div>		14.88	Master	<div><div></div></div>		1127
Before	<div><div></div></div>		38.57	Before	<div><div></div></div>		14.86	Before	<div><div></div></div>		1129
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	<div><div></div></div>		139.0	Master	<div><div></div></div>		8.384	Master	<div><div></div></div>		11.79
Before	<div><div></div></div>		139.4	Before	<div><div></div></div>		7.962	Before	<div><div></div></div>		14.39
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	<div><div></div></div>		37.90								
Before	<div><div></div></div>		37.39								
10.00 (Minimum)45.00 (Nominal)100.0 (Maximum)											
Master: 15-Jul-2008 13:39				Before: 1-Jul-2008 21:52							

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				40.63	Master				16.06	Master				1378
Before				40.71	Before				14.91	Before				1381
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				146.6	Master				8.733	Master				12.04
Before				146.5	Before				8.625	Before				14.41
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		38.28
Before		37.87
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	
Master: 15-Jul-2008 13:39 Before: 1-Jul-2008 21:52		


Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		0.9810
Before		0.9832
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	
Master: 15-Jul-2008 13:39		
Before: 1-Jul-2008 21:52		

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	<div><div></div></div>			40.00	Master	<div><div></div></div>			208.6	Master	<div><div></div></div>			6.600
	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	<div><div></div></div>			130.3	Master	<div><div></div></div>			1.028					
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)							
Master: 15-Jul-2008 13:34														

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				42.00	Master				211.4	Master				7.252
	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				133.1	Master				0.9896					
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)							
Master: 15-Jul-2008 13:34														

Multimode Array Sonic Power Cartridge / Equipment Identification		
Primary Equipment:		
Multimode Array Sonic Minimum Service So	MAMS – BA	8201
Multimode Array Sonic Control Cartridge	MAPC – BA	8198
Auxiliary Equipment:		
Electronics Cartridge Housing	ECH – SF	8198

Enhanced DTS Cartridge / Equipment Identification		
Primary Equipment:		
EDTC Gamma Ray Detector	EDTG – A/B	
Enhanced DTS Cartridge	EDTC – B	8390
Auxiliary Equipment:		
EDTC Housing	EDTH – B	8434

Enhanced DTS Cartridge Wellsite Calibration		
EDTC Accelerometer Calibration		
Phase	EDTC Z-Axis Acceleration M/S2	Value
Before		9.857

9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)
Before: 25-Jul-2008 17:35		

Enhanced DTS Cartridge Wellsite Calibration														
Detector Calibration														
Phase	Gamma Ray Background		GAPI	Value	Phase	Gamma Ray (Jig – Bkg)		GAPI	Value	Phase	Gamma Ray (Calibrated)		GAPI	Value
Before	<div><div></div></div>			3.921	Before	<div><div></div></div>			150.9	Before	<div><div></div></div>			165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			137.2 (Minimum)	150.9 (Nominal)	164.7 (Maximum)			150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)	
Before: 21-Jul-2008 22:25														

Company:

Santos

Well:

Netherby 1

Field:

Gas / Oil Exploration

Rig:

Ocean Patriot

Country:

Australia

Schlumberger

HRLT-PEX-HNGS-MSI

Spectrometry

Scale 1:500

9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)
Before: 25-Jul-2008 17:35		