

Company: SAVIA PERU S.A.

Well: LO16-31D

Field: LOBITOS

Rig Name: PEPESA 44 Country: PERU

CALIPER LOG
SP-HRLT-TLD-HGNS
SCALE 2"/100'

Rig Name:	PEPESA 44		
Field:	LOBITOS		
Location:	BLOCK - Z2B		
Well:	LO16-31D		
Company:	SAVIA PERU S.A.		
Location:		BLOCK - Z2B	Elev.: K.B. G.L. D.F.
Permanent Datum:		9505993.11	-309.00 ft
Log Measured From:		4594448.91	50.00 ft
Drilling Measured From:		Drill Floor	above Perm.Datum
State:	Max.Hole Deviation	Longitude:	Latitude:
PIURA	45.97 deg	81° 21' 55.85" W	4° 28' 9.17" S

Logging Date	28-Apr-2014		
Run Number	1		
Depth Driller	8865.00 ft		
Schlumberger Depth	6590.00 ft		
Bottom Log Interval	6590.00 ft		
Top Log Interval	5450.00 ft		
Casing Driller Size @ Depth	9.625 in @ 5556.00 ft		
Casing Schlumberger	5533 ft		
Bit Size	8.5 in		
Type Fluid In Hole	KLA-SHIELD		
Density	11.6 lbm/gal	59 s	
Fluid Loss	PH	10.4	
Source of Sample	Active Tank		
RM @ Meas Temp	0.29 ohm.m @ 73.2 degF		
RMF @ Meas Temp	0.2 ohm.m @ 74.1 degF		
RMC @ Meas Temp	0.91 ohm.m @ 73.8 degF		
Source RMF	Pressed	Pressed	
RM @ BHT	0.15 @ 150 0.1 @ 150		
Max Recorded Temperatures	150 degF		
Circulation Stopped	27-Apr-2014 20:00:31		
Logger on Bottom	28-Apr-2014 15:39:43		
Unit Number	826	PETA	
Recorded By	Naseem Mansoor		
Witnessed By	Jose Coronado		

Disclaimer

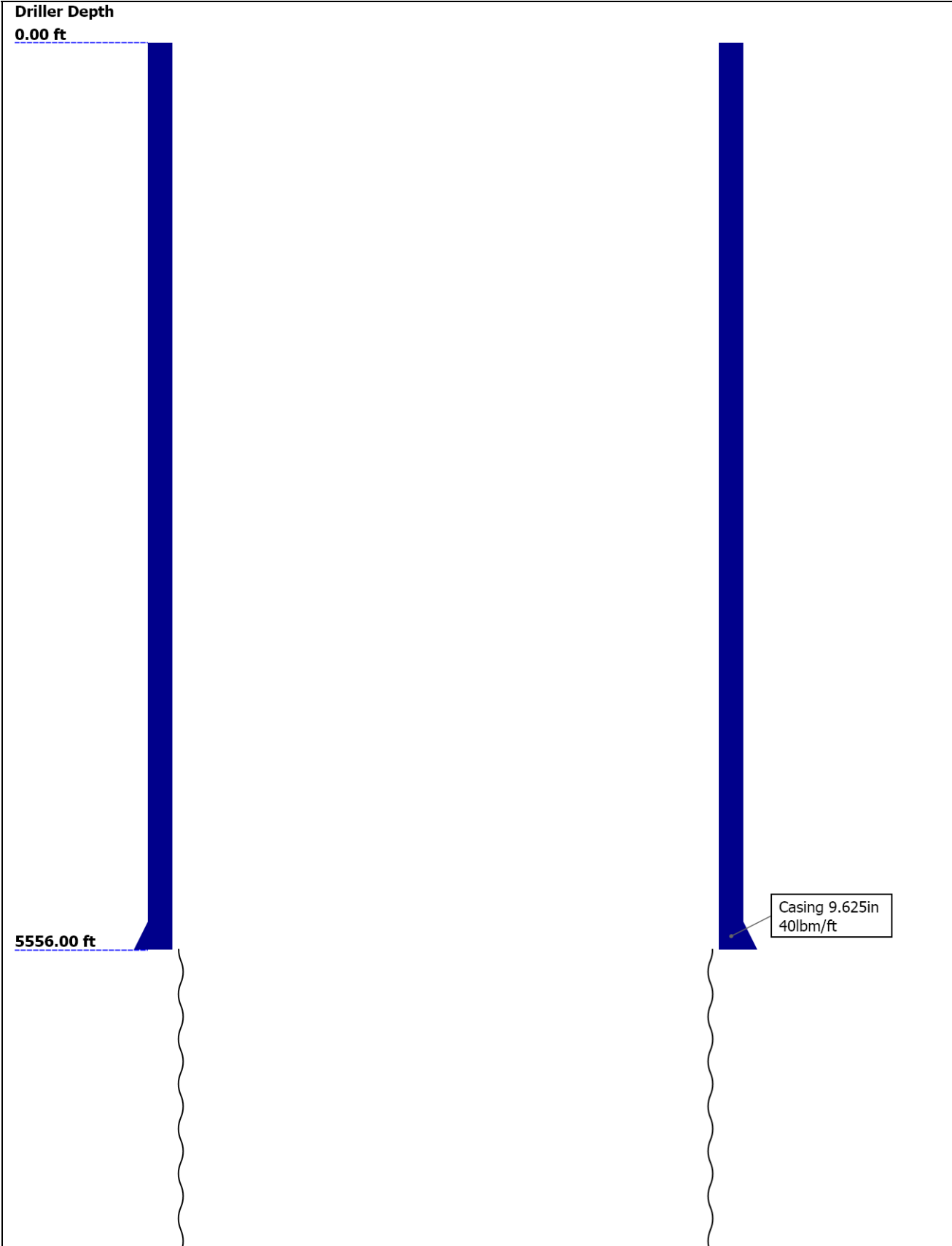
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Well Sketch



8865.00 ft

Open Hole 8.5in

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.5					
Top Driller (ft)	5556					
Top Logger (ft)	5533					
Bottom Driller (ft)	8865					
Bottom Logger (ft)	6590					
Casing						
Size (in)	9.625					
Weight (lbm/ft)	40					
Inner Diameter (in)	8.835					
Grade	N/A					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	5556					
Bottom Logger (ft)	5533					

Operational Run Summary

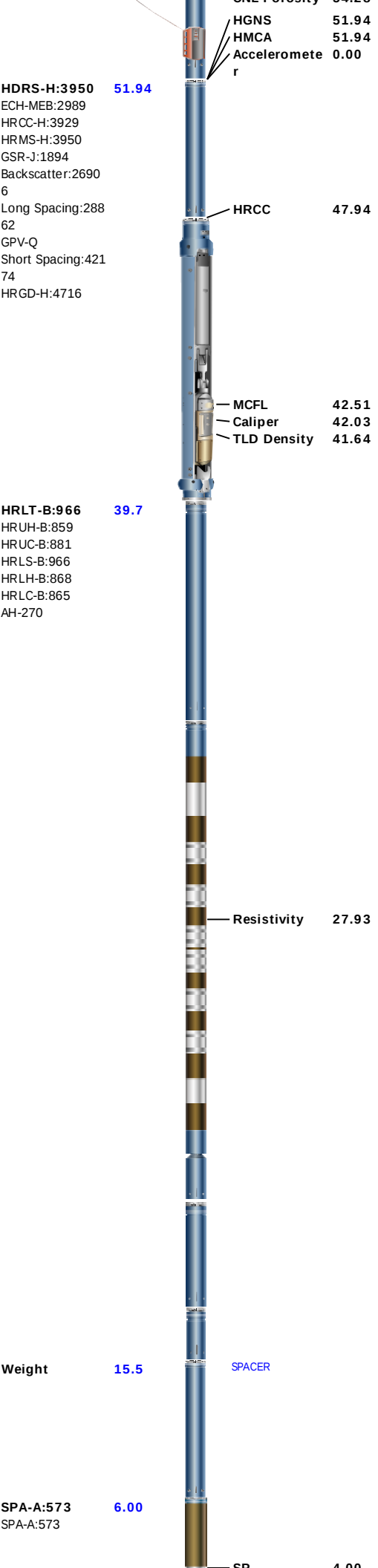
Parameter (unit)	1					
Date Log Started	28-Apr-2014					
Time Log Started	12:14:06					
Date Log Finished	28-Apr-2014					
Time Log Finished	16:49:28					
Top Log Interval (ft)	5450.00					
Bottom Log Interval (ft)	6590.00					
Total Depth (ft)	8867.00					
Max Hole Deviation (deg)	45.97					
Azimuth of Max Deviation (deg)	287.78					
Bit Size (in)	8.500					
Logging Unit Number	826					
Logging Unit Location	PETA					
Recorded By	Naseem Mansoor					
Witnessed By	Jose Coronado					

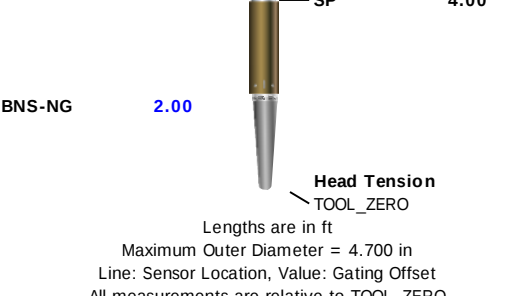
Borehole Fluids

Parameter(unit)	1					
Fluid Type	Water					
Fluid Name	DFT_WATER_K LA - DFT_WATER_K LA_SHIELD					
Max Recorded Temperatures (degF)	150					
Source of Sample	Active Tank					
Salinity (ppm)	0					
Density (lbm/gal)	11.6					
Funnel Viscosity (s)	59					
Fluid Loss (cm3)	5					
PH	10.4					
Date/Time Circulation Stopped	27-Apr-2014 20:00:31					
Date Logger on Bottom	28-Apr-2014					
Time Logger on Bottom	15:39:43					
Source RMF	Pressed					
RMC	Pressed					
RM @ Meas Temp (ohm.m@degF)	0.29 @ 73.2					
RMF @ Meas Temp (ohm.m@degF)	0.2 @ 74.1					
RMC @ Meas Temp (ohm.m@degF)	0.91 @ 73.8					
RM @ BHT (ohm.m@degF)	0.15 @ 150					
RMF @ BHT (ohm.m@degF)	0.1 @ 150					
RMC @ BHT (ohm.m@degF)	0.47 @ 150					
Total Solid (%)	14					
High Gravity Solids (%)						

Remarks and Equipment Summary

1: Toolstring				1: Remarks
Equip name	Length	MP name	Offset	Logging objective: formation resistivity, nuclear and caliper evaluation.
LEH-QT:2708 LEH-QT:2708	68.69			Toolstring ran as per toolsketch.
AH-369:938	65.78			Matrix was set to Limestone with density 2.71 g/cc, as per client request.
DTC-H:8280 ECH-KC:9357 DTC-H:8280	64.35	CTEM HV	63.45 0.00	Neutron corrections: Hole Size, mud weight, mud cake, pressure and temperature.
HGNS-H:4740 HGNH:2750 NPV-N NSR-F:2254 HMCA-H HACCZ-H:4651 HGNS-H:4740	61.35	TelStatus ToolStatus Temperature GR	61.35 61.35 61.32 60.61	Main log correlated to downlog.
		CNL Porosity	54.28	TD wasn't tagged. Maximum depth reached 6590 ft. Casing Shoe found @ 5533 ft.
				Tool String run with 1.5: Standoffs
				Repeat section was made close to casing shoe to avoid going down to the sticky zones.



			
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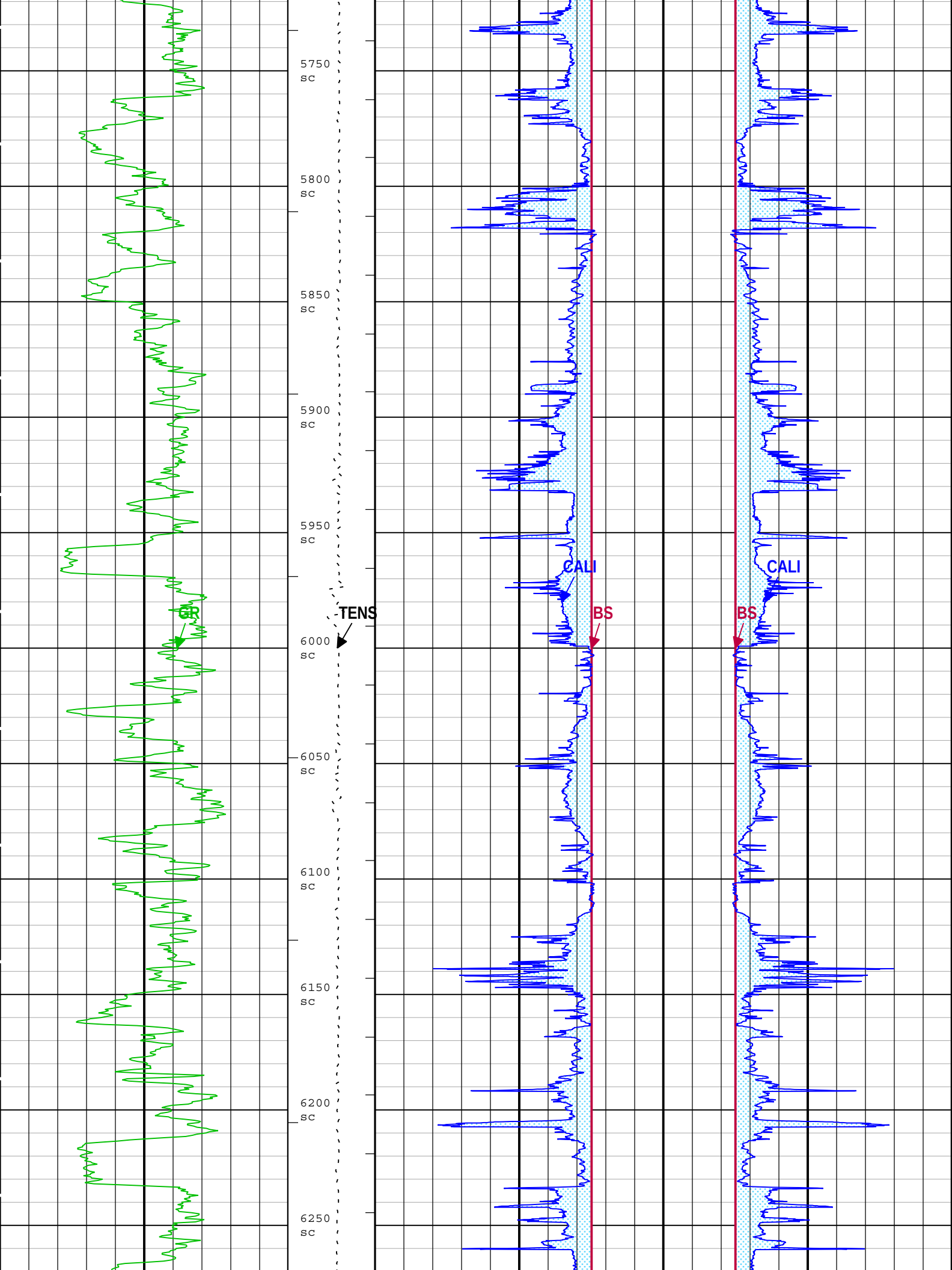
Depth Summary			
	1		
Depth Measuring Device			
Type	IDW-JA		
Serial Number	7029		
Calibration Date	24-SEP-2013		
Calibrator Serial Number	3421		
Calibration Cable Type	7-46P-XS		
Wheel Correction 1	-7		
Wheel Correction 2	-6		
Tension Device			
Type	CMTD-B/A		
Serial Number	2924		
Calibration Date	25-APR-2014		
Calibrator Serial Number	921		
Number of Calibration Points	10		
Calibration Root Mean Square Error	11		
Calibration Peak Error	24		
Logging Cable			
Type	7-46P-XS		
Serial Number	U713055		
Length	30000.00 ft		
Conveyance Type	Wireline		
Rig Type	OFFSHORE		
1:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	IDW used as primary depth reference	
Rig Up Length At Surface	191.60 ft	Z-Chart used as secondary depth reference	
Rig Up Length At Bottom	190.30 ft	All Schlumberger depth control policies were followed	
Rig Up Length Correction	1.30 ft		
Stretch Correction	2.00 ft		
Tool Zero Check At Surface	2.00 ft		

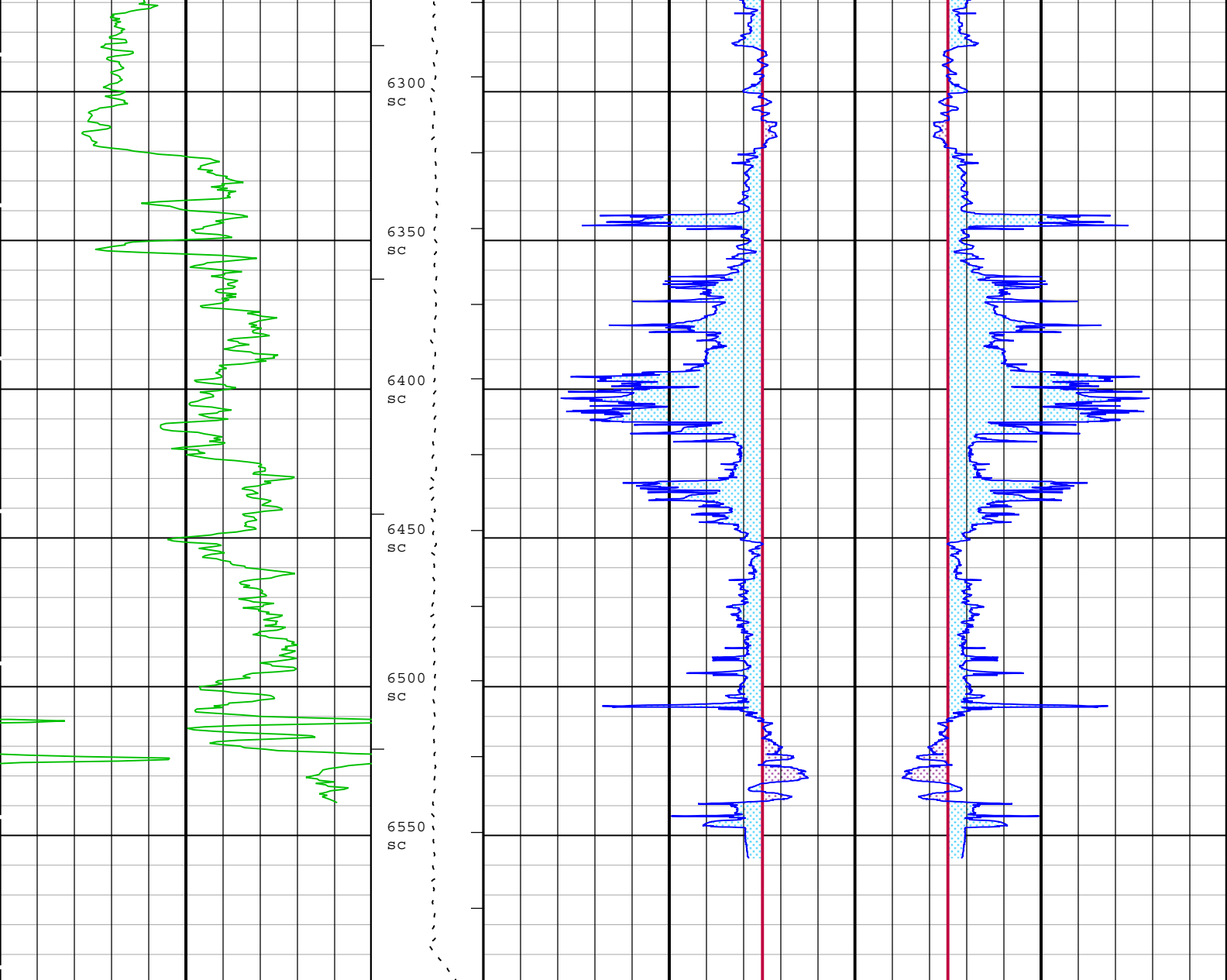
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MAIN LOG

Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	HVAS, FCD	132.33	ft3
IHV	Integrated Hole Volume	HVAS	411.2	ft3

Software Version				
Acquisition System			Version	
MaxWell			4.0.9163.3000	
Application Patch			Patch-SP-10767_13393-4.0.9163.3001	
Computation	Description			Version





Gamma Ray (GR) HGNS-H		Cable Tension (TENS) 8000 lbf 0	WASHOUT		WASHOUT			
gAPI			MUDCAKE		MUDCAKE			
			Bit Size (BS)		Bit Size (BS)			
			16	in	6	6	in	16
			Caliper (CALI) HDRS-H		Caliper (CALI) HDRS-H			
			16	in	6	6	in	16

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (Blank 3 Track Depth) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Apr-2014 22:25:54

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.5	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	5533	ft

CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DFD	Drilling Fluid Density	Borehole	11.6	lbm/gal
FCD	Future Casing (Outer) Diameter	WLSESSION	7	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
HVCS	Integrated Hole Volume Caliper Selection	Borehole	Measured Area	

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
1				

REPEAT SECTION				

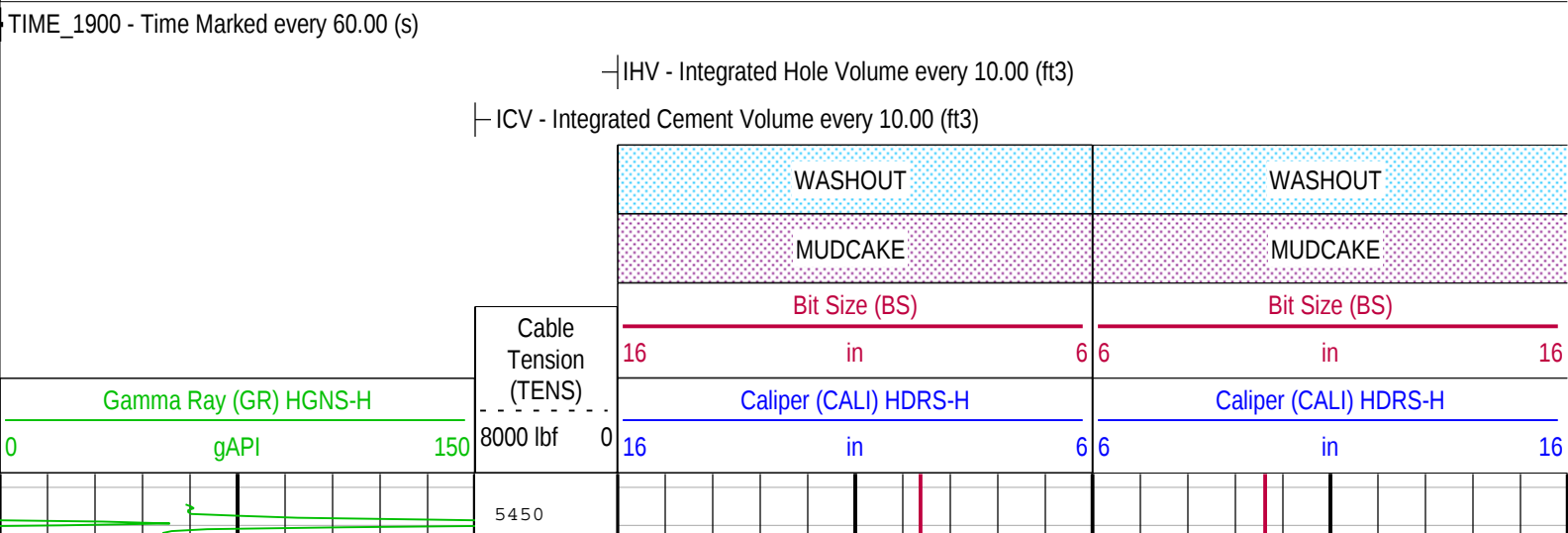
Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	HVAS, FCD	19.66	ft3
IHV	Integrated Hole Volume	HVAS	61.08	ft3

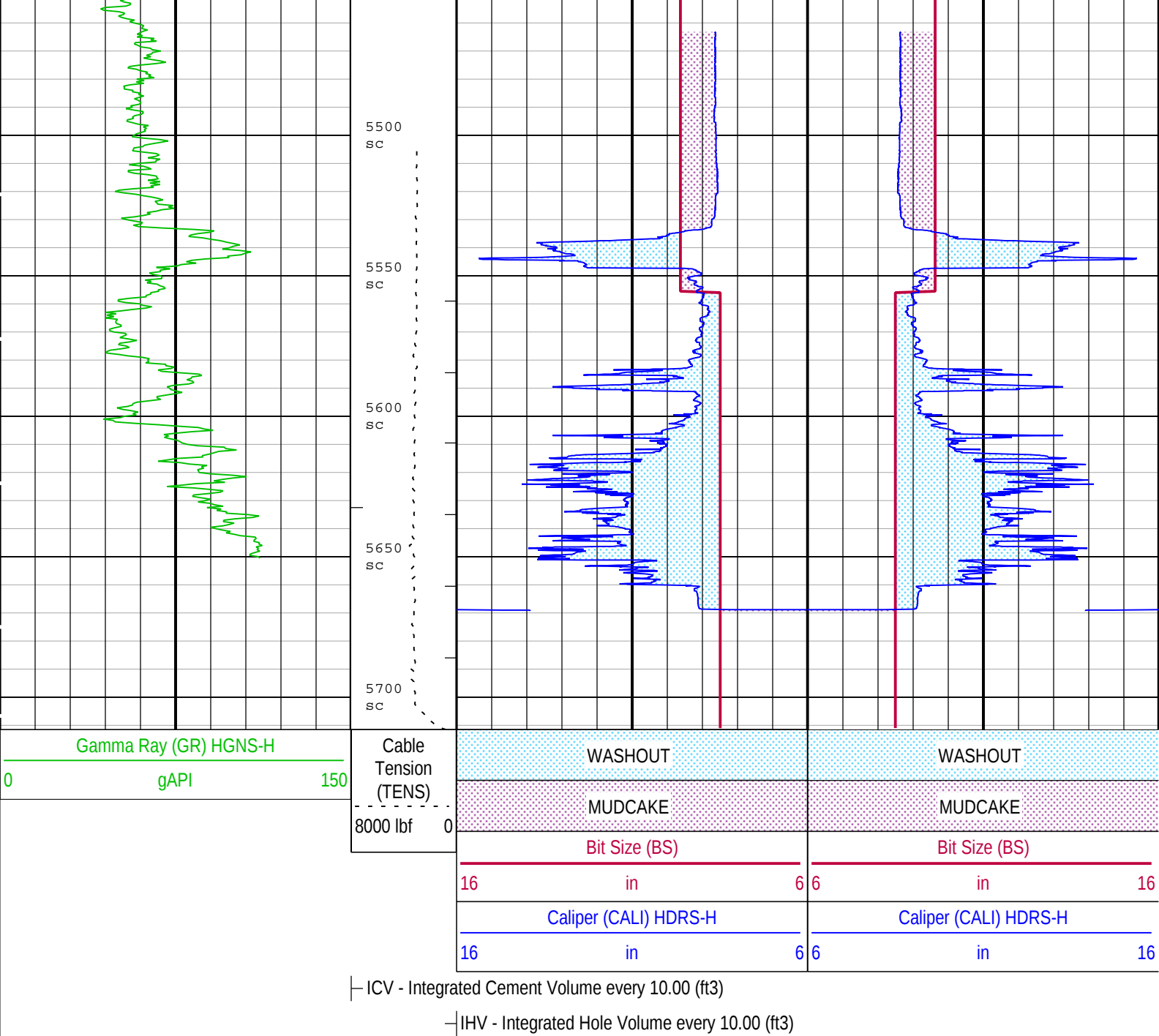
Software Version				
Acquisition System			Version	
MaxWell			4.0.9163.3000	
Application Patch			Patch-SP-10767_13393-4.0.9163.3001	
Computation	Description			Version
Borehole	Borehole Ensemble provides common Borehole Parameters and Channels			4.0.9213.3000
Tool Elements	Description		Software Version	Firmware Version
HRCC-H	HILT High-Resolution Control Cartridge, 150 degC		4.0.9231.3000	2.0
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC		4.0.9231.3000	2.0

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1	Log[9]:Up	Up	5505.00 ft	5711.43 ft	28-Apr-2014 3:32:10 PM	28-Apr-2014 3:37:28 PM	ON	3.00 ft	No
All depths are referenced to toolstring zero									

Log	Company:SAVIA PERU S.A. Well:LO16-31D 1: Log[9]:Up:S005
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Description: Format: Log (Blank 3 Track Depth) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Apr-2014 22:25:54





TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (Blank 3 Track Depth) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Apr-2014 22:25:54

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	8.5	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0	in
CBLO	Casing Bottom (Logger)	WLSESSION	5533	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DFD	Drilling Fluid Density	Borehole	11.6	lbm/gal
FCD	Future Casing (Outer) Diameter	WLSESSION	7	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	

HVCS	Integrated Hole Volume Caliper Selection	Borehole	Measured Area					
Tool Control Parameters								
Parameter	Description	Tool	Value	Unit				
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h				
Calibration Report								
HRLT-B (High Resolution Laterolog Array) Calibration - Run 1								
Primary Equipment :								
HRLT-B Sonde		HRLS-B	966					
HRLT-B Calibration - HRLT M0-M1 Voltage Plus								
Before (Measured):		12:22:37 28-Apr-2014	After (Measured): 16:48:19 28-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
HRLT M01 - 0	uV	Before	-322.7	-379.6	-316.1	-280.6		
		After	-322.7	-379.6	-315.2	-280.6		
		After-Before	-----	-9.7	0.9	9.7		
HRLT M01 - 1	uV	Before	-322.7	-379.6	-315.5	-280.6		
		After	-322.7	-379.6	-313.4	-280.6		
		After-Before	-----	-9.7	2.1	9.7		
HRLT M01 - 2	uV	Before	-322.7	-379.6	-317.7	-280.6		
		After	-322.7	-379.6	-315.4	-280.6		
		After-Before	-----	-9.7	2.3	9.7		
HRLT M01 - 3	uV	Before	-322.7	-379.6	-316.2	-280.6		
		After	-322.7	-379.6	-315.0	-280.6		
		After-Before	-----	-9.7	1.2	9.7		
HRLT M01 - 4	uV	Before	-322.7	-379.6	-312.7	-280.6		
		After	-322.7	-379.6	-311.6	-280.6		
		After-Before	-----	-9.7	1.1	9.7		
HRLT M01 - 5	uV	Before	-322.7	-379.6	-317.0	-280.6		
		After	-322.7	-379.6	-316.1	-280.6		
		After-Before	-----	-9.7	0.9	9.7		
HRLT M01 - 6	uV	Before	322.7	280.6	314.6	379.6		
		After	322.7	280.6	313.5	379.6		
		After-Before	-----	-9.7	-1.1	9.7		
HRLT-B Calibration - HRLT M1-M2 Voltage Plus								
Before (Measured):		12:22:37 28-Apr-2014	After (Measured): 16:48:19 28-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
HRLT M12 - 0	uV	Before	1781.0	1548.7	1732.4	2095.3		
		After	1781.0	1548.7	1727.8	2095.3		
		After-Before	-----	-53.4	-4.6	53.4		
HRLT M12 - 1	uV	Before	1781.0	1548.7	1736.0	2095.3		
		After	1781.0	1548.7	1724.8	2095.3		
		After-Before	-----	-53.4	-11.2	53.4		
HRLT M12 - 2	uV	Before	1781.0	1548.7	1740.9	2095.3		
		After	1781.0	1548.7	1729.2	2095.3		
		After-Before	-----	-53.4	-11.7	53.4		
HRLT M12 - 3	uV	Before	1781.0	1548.7	1732.1	2095.3		
		After	1781.0	1548.7	1725.4	2095.3		
		After-Before	-----	-53.4	-6.7	53.4		
HRLT M12 - 4	uV	Before	1781.0	1548.7	1711.3	2095.3		
		After	1781.0	1548.7	1705.7	2095.3		
		After-Before	-----	-53.4	-5.6	53.4		
HRLT M12 - 5	uV	Before	1781.0	1548.7	1735.4	2095.3		
		After	1781.0	1548.7	1731.2	2095.3		
		After-Before	-----	-53.4	-4.2	53.4		
HRLT M12 - 6	uV	Before	-1781.0	-2095.3	-1739.4	-1548.7		
		After	-1781.0	-2095.3	-1734.2	-1548.7		
		After-Before	-----	-53.4	5.2	53.4		
HRLT-B Calibration - HRLT M2-M3 Voltage Plus								
Before (Measured):		12:22:37 28-Apr-2014	After (Measured): 16:48:19 28-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
HRLT M23 - 0	uV	Before	1781.0	1548.7	1732.3	2095.3		
		After	1781.0	1548.7	1726.5	2095.3		
		After-Before	-----	-53.4	-5.8	53.4		

		After-Before	-----	-53.4	-5.8	53.4	
HRLT M23 - 1	uV	Before	1781.0	1548.7	1739.0	2095.3	
		After	1781.0	1548.7	1726.8	2095.3	
		After-Before	-----	-53.4	-12.2	53.4	
HRLT M23 - 2	uV	Before	1781.0	1548.7	1747.6	2095.3	
		After	1781.0	1548.7	1735.3	2095.3	
		After-Before	-----	-53.4	-12.3	53.4	
HRLT M23 - 3	uV	Before	1781.0	1548.7	1744.1	2095.3	
		After	1781.0	1548.7	1736.6	2095.3	
		After-Before	-----	-53.4	-7.5	53.4	
HRLT M23 - 4	uV	Before	1781.0	1548.7	1720.2	2095.3	
		After	1781.0	1548.7	1713.5	2095.3	
		After-Before	-----	-53.4	-6.7	53.4	
HRLT M23 - 5	uV	Before	1781.0	1548.7	1746.6	2095.3	
		After	1781.0	1548.7	1741.2	2095.3	
		After-Before	-----	-53.4	-5.4	53.4	
HRLT M23 - 6	uV	Before	-1781.0	-2095.3	-1730.7	-1548.7	
		After	-1781.0	-2095.3	-1724.4	-1548.7	
		After-Before	-----	-53.4	6.3	53.4	

HRLT-B Calibration - HRLT A3-A4 Voltage Plus

Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V34 - 0	uV	Before	70000.0	60869.6	67627.5	82352.9	
		After	70000.0	60869.6	67545.5	82352.9	
		After-Before	-----	-2100.0	-82.0	2100.0	
HRLT V34 - 1	uV	Before	70000.0	60869.6	67851.6	82352.9	
		After	70000.0	60869.6	67516.5	82352.9	
		After-Before	-----	-2100.0	-335.1	2100.0	
HRLT V34 - 2	uV	Before	70000.0	60869.6	68466.9	82352.9	
		After	70000.0	60869.6	68100.3	82352.9	
		After-Before	-----	-2100.0	-366.6	2100.0	
HRLT V34 - 3	uV	Before	70000.0	60869.6	68545.3	82352.9	
		After	70000.0	60869.6	68368.4	82352.9	
		After-Before	-----	-2100.0	-176.9	2100.0	
HRLT V34 - 4	uV	Before	70000.0	60869.6	67486.4	82352.9	
		After	70000.0	60869.6	67367.0	82352.9	
		After-Before	-----	-2100.0	-119.4	2100.0	
HRLT V34 - 5	uV	Before	70000.0	60869.6	68515.0	82352.9	
		After	70000.0	60869.6	68439.3	82352.9	
		After-Before	-----	-2100.0	-75.7	2100.0	
HRLT V34 - 6	uV	Before	-70000.0	-82352.9	-66529.9	-60869.6	
		After	-70000.0	-82352.9	-66438.1	-60869.6	
		After-Before	-----	-2100.0	91.8	2100.0	

HRLT-B Calibration - HRLT A4-A5 Voltage Plus

Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V45 - 0	uV	Before	70000.0	60869.6	67715.9	82352.9	
		After	70000.0	60869.6	67636.5	82352.9	
		After-Before	-----	-2100.0	-79.4	2100.0	
HRLT V45 - 1	uV	Before	70000.0	60869.6	68148.3	82352.9	
		After	70000.0	60869.6	67807.9	82352.9	
		After-Before	-----	-2100.0	-340.4	2100.0	
HRLT V45 - 2	uV	Before	70000.0	60869.6	68705.2	82352.9	
		After	70000.0	60869.6	68346.0	82352.9	
		After-Before	-----	-2100.0	-359.2	2100.0	
HRLT V45 - 3	uV	Before	70000.0	60869.6	68741.1	82352.9	
		After	70000.0	60869.6	68559.4	82352.9	
		After-Before	-----	-2100.0	-181.7	2100.0	
HRLT V45 - 4	uV	Before	70000.0	60869.6	67612.1	82352.9	
		After	70000.0	60869.6	67487.1	82352.9	
		After-Before	-----	-2100.0	-125.0	2100.0	
HRLT V45 - 5	uV	Before	70000.0	60869.6	68603.0	82352.9	
		After	70000.0	60869.6	68537.0	82352.9	
		After-Before	-----	-2100.0	-66.0	2100.0	
HRLT V45 - 6	uV	Before	-70000.0	-82352.9	-66865.0	-60869.6	
		After	-70000.0	-82352.9	-66765.3	-60869.6	
		After-Before	-----	-2100.0	99.7	2100.0	

HRLT-B Calibration - HRLT A5-A6 Voltage Plus							
Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT V56 - 0	uV	Before	70000.0	60869.6	67662.0	82352.9	
		After	70000.0	60869.6	67577.0	82352.9	
		After-Before	----	-2100.0	-85.0	2100.0	
HRLT V56 - 1	uV	Before	70000.0	60869.6	68116.8	82352.9	
		After	70000.0	60869.6	67787.2	82352.9	
		After-Before	----	-2100.0	-329.6	2100.0	
HRLT V56 - 2	uV	Before	70000.0	60869.6	68701.1	82352.9	
		After	70000.0	60869.6	68333.0	82352.9	
		After-Before	----	-2100.0	-368.1	2100.0	
HRLT V56 - 3	uV	Before	70000.0	60869.6	68694.0	82352.9	
		After	70000.0	60869.6	68534.0	82352.9	
		After-Before	----	-2100.0	-160.0	2100.0	
HRLT V56 - 4	uV	Before	70000.0	60869.6	67560.6	82352.9	
		After	70000.0	60869.6	67436.9	82352.9	
		After-Before	----	-2100.0	-123.7	2100.0	
HRLT V56 - 5	uV	Before	70000.0	60869.6	68545.4	82352.9	
		After	70000.0	60869.6	68482.8	82352.9	
		After-Before	----	-2100.0	-62.6	2100.0	
HRLT V56 - 6	uV	Before	-70000.0	-82352.9	-66817.3	-60869.6	
		After	-70000.0	-82352.9	-66748.2	-60869.6	
		After-Before	----	-2100.0	69.1	2100.0	
HRLT-B Calibration - HRLT Torpedo-M0 Voltage							
Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT VTP - 0	uV	Before	-70000.0	-82352.9	-67555.0	-60869.6	
		After	-70000.0	-82352.9	-67471.9	-60869.6	
		After-Before	----	-2100.0	83.1	2100.0	
HRLT VTP - 1	uV	Before	-70000.0	-82352.9	-68445.6	-60869.6	
		After	-70000.0	-82352.9	-68101.7	-60869.6	
		After-Before	----	-2100.0	343.9	2100.0	
HRLT VTP - 2	uV	Before	-70000.0	-82352.9	-68996.2	-60869.6	
		After	-70000.0	-82352.9	-68627.1	-60869.6	
		After-Before	----	-2100.0	369.1	2100.0	
HRLT VTP - 3	uV	Before	-70000.0	-82352.9	-69023.6	-60869.6	
		After	-70000.0	-82352.9	-68852.8	-60869.6	
		After-Before	----	-2100.0	170.8	2100.0	
HRLT VTP - 4	uV	Before	-70000.0	-82352.9	-67894.7	-60869.6	
		After	-70000.0	-82352.9	-67759.1	-60869.6	
		After-Before	----	-2100.0	135.6	2100.0	
HRLT VTP - 5	uV	Before	-70000.0	-82352.9	-68878.6	-60869.6	
		After	-70000.0	-82352.9	-68799.6	-60869.6	
		After-Before	----	-2100.0	79.0	2100.0	
HRLT VTP - 6	uV	Before	70000.0	60869.6	67091.9	82352.9	
		After	70000.0	60869.6	66985.4	82352.9	
		After-Before	----	-2100.0	-106.5	2100.0	
HRLT-B Calibration - HRLT Bridle#9-M0 Voltage							
Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT VBD - 0	uV	Before	-70000.0	-82352.9	-67502.9	-60869.6	
		After	-70000.0	-82352.9	-67429.3	-60869.6	
		After-Before	----	-2100.0	73.6	2100.0	
HRLT VBD - 1	uV	Before	-70000.0	-82352.9	-68343.9	-60869.6	
		After	-70000.0	-82352.9	-68011.7	-60869.6	
		After-Before	----	-2100.0	332.2	2100.0	
HRLT VBD - 2	uV	Before	-70000.0	-82352.9	-68892.2	-60869.6	
		After	-70000.0	-82352.9	-68524.4	-60869.6	
		After-Before	----	-2100.0	367.8	2100.0	
HRLT VBD - 3	uV	Before	-70000.0	-82352.9	-68923.8	-60869.6	
		After	-70000.0	-82352.9	-68773.5	-60869.6	
		After-Before	----	-2100.0	150.3	2100.0	
HRLT VBD - 4	uV	Before	-70000.0	-82352.9	-67832.1	-60869.6	
		After	-70000.0	-82352.9	-67706.2	-60869.6	

		After-Before	-----	-2100.0	125.9	2100.0	
HRLT VBD - 5	uV	Before	-70000.0	-82352.9	-68820.5	-60869.6	
		After	-70000.0	-82352.9	-68753.2	-60869.6	
		After-Before	-----	-2100.0	67.3	2100.0	
HRLT VBD - 6	uV	Before	70000.0	60869.6	66977.3	82352.9	
		After	70000.0	60869.6	66898.3	82352.9	
		After-Before	-----	-2100.0	-79.0	2100.0	

HRLT-B Calibration - HRLT Source Current Plus

Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT ISO - 0	uA	Before	284.0	247.0	282.1	334.1	
		After	284.0	247.0	281.7	334.1	
		After-Before	-----	-8.5	-0.4	8.5	
HRLT ISO - 1	uA	Before	281.1	244.4	281.1	330.7	
		After	281.1	244.4	281.1	330.7	
		After-Before	-----	-8.5	0.0	8.5	
HRLT ISO - 2	uA	Before	281.1	244.4	281.1	330.7	
		After	281.1	244.4	281.1	330.7	
		After-Before	-----	-8.5	0.0	8.5	
HRLT ISO - 3	uA	Before	281.1	244.4	281.1	330.7	
		After	281.1	244.4	281.1	330.7	
		After-Before	-----	-8.5	0.0	8.5	
HRLT ISO - 4	uA	Before	281.1	244.4	281.1	330.7	
		After	281.1	244.4	281.1	330.7	
		After-Before	-----	-8.5	0.0	8.5	
HRLT ISO - 5	uA	Before	281.1	244.4	281.1	330.7	
		After	281.1	244.4	281.1	330.7	
		After-Before	-----	-8.5	0.0	8.5	
HRLT ISO - 6	uA	Before	281.1	244.4	281.1	330.7	
		After	281.1	244.4	281.1	330.7	
		After-Before	-----	-8.5	0.0	8.5	

HRLT-B Calibration - HRLT Vertical Voltage PI

Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
HRLT MV - 0	uV	Before	-322.7	-379.6	-317.7	-280.6	
		After	-322.7	-379.6	-317.0	-280.6	
		After-Before	-----	-9.7	0.7	9.7	
HRLT MV - 1	uV	Before	-322.7	-379.6	-311.8	-280.6	
		After	-322.7	-379.6	-310.0	-280.6	
		After-Before	-----	-9.7	1.8	9.7	
HRLT MV - 2	uV	Before	-322.7	-379.6	-312.1	-280.6	
		After	-322.7	-379.6	-310.3	-280.6	
		After-Before	-----	-9.7	1.8	9.7	
HRLT MV - 3	uV	Before	-322.7	-379.6	-308.8	-280.6	
		After	-322.7	-379.6	-307.9	-280.6	
		After-Before	-----	-9.7	0.9	9.7	
HRLT MV - 4	uV	Before	-322.7	-379.6	-302.1	-280.6	
		After	-322.7	-379.6	-301.3	-280.6	
		After-Before	-----	-9.7	0.8	9.7	
HRLT MV - 5	uV	Before	-322.7	-379.6	-320.9	-280.6	
		After	-322.7	-379.6	-320.3	-280.6	
		After-Before	-----	-9.7	0.6	9.7	
HRLT MV - 6	uV	Before	322.7	280.6	323.9	379.6	
		After	322.7	280.6	323.1	379.6	
		After-Before	-----	-9.7	-0.8	9.7	

HRLT-B Calibration - HRLT Calibration Temperature

Before (Measured):		12:22:37 28-Apr-2014		After (Measured):		16:48:19 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CTEM_HRLT	degF	Before			90.8		
		After			95.0		
		After-Before	-----	-----	4.2	-----	

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run 1

Primary Equipment :

HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3929
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	4716
Auxiliary Equipment :		
HRDD Backscatter Detector	Backscatter	26906
HRDD Long Spacing Detector	Long Spacing	28862
HRDD Short Spacing Detector	Short Spacing	42174
Cesium 137 Gamma-Ray Logging Source	GSR-J	1894
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3929
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	3950

Calibration Parameter :

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

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured):		12:27:24 28-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	7.80	10.00	
Large Ring	in	Before	12.00	9.00	11.86	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM):		18:14:00 25-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.597	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.688	1.696	
Pe Aluminum		Master	2.570	2.470	2.509	2.670	
Pe Magnesium		Master	2.650	2.550	2.651	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM):		18:14:00 25-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.2156	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.3916	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.7811	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.3717	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.5557	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.3841	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):		18:14:00 25-Apr-2014		Before (Measured):		12:33:11 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7403		
		Before	0.7403	0.7033	0.7402	0.7773	
		Before-Master	-----	-----	-0.0001	-----	
BS Window Sum	1/s	Master	1		23468		
		Before	23468	22295	23941	24642	
		Before-Master	-----	-----	473	-----	
SS Window Ratio		Master	1.0000		0.4770		
		Before	0.4770	0.4531	0.4784	0.5008	
		Before-Master	-----	-----	0.0014	-----	
SS Window Sum	1/s	Master	1		11122		
		Before	11122	10566	11110	11678	
		Before-Master	-----	-----	-12	-----	
LS Window Ratio		Master	1.0000		0.2991		
		Before	0.2991	0.2842	0.3007	0.3141	
		Before-Master	-----	-----	0.0016	-----	
LS Window Sum	1/s	Master	1		1277		
		Before	1277	1213	1269	1341	
		Before-Master	-----	-----	-8	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		18:14:00 25-Apr-2014		Before (Measured):		12:33:11 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1511	2400	
		Before		1000	1501	2400	

		Before-Master	-----	-100	-10	100	
SS PM High Voltage	V	Master		1000	1582	2400	
		Before		1000	1586	2400	
		Before-Master	-----	-100	4	100	
LS PM High Voltage	V	Master		1000	1361	2400	
		Before		1000	1362	2400	
		Before-Master	-----	-100	1	100	
HDRS Density Calibration - Crystal Quality Resolutions							
Master (EEPROM):		18:14:00 25-Apr-2014		Before (Measured):		12:33:11 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	10.80	25.00	
		Before		5.00	10.74	25.00	
		Before-Master	-----	-1.00	-0.06	1.00	
SS Crystal Resolution	%	Master		5.00	9.42	20.00	
		Before		5.00	9.53	20.00	
		Before-Master	-----	-1.00	0.11	1.00	
LS Crystal Resolution	%	Master		5.00	8.85	20.00	
		Before		5.00	8.98	20.00	
		Before-Master	-----	-1.00	0.13	1.00	
HDRS MCFL Calibration - MCFL Accumulations							
Before (Measured):		12:33:30 28-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3860	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3815	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3826	4136	
HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run 1							
Primary Equipment :							
	HILT Gamma-Ray and Neutron Sonde, 150 degC		HGNS-H		4740		
Auxiliary Equipment :							
	HGNS Accelerometer, 150 degC		HACCZ-H		4651		
	AmBe Neutron Logging Source		NSR-F		2254		
Calibration Parameter :							
	Water Temperature						
	Housing Size						
	JIG-BKG (Jig minus background reference)		160				
HGNS Accelerometer Calibration - Accelerometer Accumulations							
Before (Measured):		12:19:06 28-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.0	32.8	
HGNS Accelerometer EEPROM - Accelerometer EEPROM Read							
Master (EEPROM):		00:00:00 15-Dec-2005					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	-----	-----	-6900.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	26.920	-----	
Accelerometer Coefficients - 2		Master	-----	-----	0.006	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.733	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	298.600	-----	
Accelerometer Coefficients - 9		Master	-----	-----	0.998	-----	
HGNS Neutron Calibration - HGNS Neutron Accumulations							
Master (EEPROM):		20:34:56 25-Apr-2014		Before (Measured):		12:35:51 28-Apr-2014	
				After (Measured):		16:45:12 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	

Near Zero Measurement	1/s	Master Before After Before-Master After-Before	0 0 0 ----- -----	5.0 5.0 5.0 -4.2 -4.2	27.8 28.0 27.7 0.2 -0.3	40.0 40.0 40.0 4.2 4.2	
Far Zero Measurement	1/s	Master Before After Before-Master After-Before	0 0 0 ----- -----	5.0 5.0 5.0 -4.1 -4.4	27.4 29.0 31.3 1.6 2.3	40.0 40.0 40.0 4.1 4.4	
Near Plus Measurement	1/s	Master Before After Before-Master After-Before	6031.0 ----- ----- ----- -----	4700.0 ----- ----- ----- -----	5842.0 ----- ----- ----- -----	6900.0 ----- ----- ----- -----	
Far Plus Measurement	1/s	Master Before After Before-Master After-Before	2793.0 ----- ----- ----- -----	1900.0 ----- ----- ----- -----	2441.0 ----- ----- ----- -----	2900.0 ----- ----- ----- -----	
Near Corrected Plus Measurement	1/s	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	4700.0 ----- ----- ----- -----	5754.0 ----- ----- ----- -----	6900.0 ----- ----- ----- -----	
Far Corrected Plus Measurement	1/s	Master Before After Before-Master After-Before	----- ----- ----- ----- -----	1900.0 ----- ----- ----- -----	2375.0 ----- ----- ----- -----	2900.0 ----- ----- ----- -----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):		12:51:47 28-Apr-2014		After (Measured):		16:42:59 28-Apr-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	15.3	120.0	
		After	30.0	0	19.8	120.0	
		After-Before	-----	-----	4.5	-----	
RGR Plus Measurement	gAPI	Before	179.8	152.4	159.2	200.0	
		After	179.8	152.4	156.7	200.0	
		After-Before	-----	-----	-2.5	-----	
GR Calibration Gain		Before	0.89	0.80	1.01	1.05	
		After	-----	-----	-----	-----	
		After-Before	-----	-----	-----	-----	

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

Primary Equipment :				2708			
Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor				LEH-QT			

HTEN Master Calibration - HTEN Master Calibration

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

HTEN Before Calibration - HTEN Before Calibration

Before (Measured):		12:54:36 28-Apr-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RHTE Zero Measurement	lbf	Before	0	-300.000	-113.685	300.000	
RHTE Plus Measurement	lbf	Before	1107.020	940.967	1124.068	1273.073	
HTEN Gain		Before	2.650	0.800	0.894	4.500	
HTEN Offset	lbf	Before	0	-1000.000	101.678	1000.000	

Company:	SAVIA PERU S.A.	Schlumberger
Well:	LO16-31D	
Field:	LOBITOS	
Rig Name:	PEPESA 44	
Country:	PERU	

CALIPER LOG
SP-HRLT-TLD-HGNS
SCALE 2"/100'