

**DUAL SPACED NEUTRON
SPECTRAL DENSITY
DUAL LATEROLOG
MICRO-SPHERICALLY
FOCUSED LOG**

Fold here

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON			
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	8710	8315	REC	0 API	150 API				30 %	-10 %	2.71 g/cc	30 %	-10 %	LIME
ONE	8315	8300	REC	0 API	150 API									
DIRECTIONAL INFORMATION														
Maximum Deviation						@	KOP						@	
Remarks: RUN ONE: RWCH/BRIDLE/CR/SP/BRIDLE/BS/GTET/CSNG/FLEX/DLLT/MSFL/BN RAN IN COMBINATION														
RUN TWO: RWCH/GTET/DSNT/SDLT/BN RAN IN COMBINATION														
BOREHOLE RUGOSITY, BITSIZE, TENSION PULLS AND WASHOUTS MAY EFFECT LOG QUALITY AND REPEATABILITY														
CHLORIDES REPORTED TO BE 54,000 ppm														
ANNULAR HOLE VOLUME CALCULATED USING 4.5-INCH CASING														
NO JEWELRY RAN PER CUSTOMER REQUEST DUE TO BOREHOLE SIZE.														
RUN ONE BRIDGED OUT AT 8580'. LOGGED OUT FROM THERE														
YOU CREW TODAY: B. CALWELL, T. RAFF,						RIG: NABORS M40								
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, GRAND JUNCTION, CO (970) 523-3600														
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.														
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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	6.000	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	8.900	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	54000.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.114	ohmm
	SHARED	TRM	Temperature of Mud	66.8	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	4.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	8725.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	

Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
Rwa / CrossPlot	BHSM	Borehole Size Source Tool	MSFL	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.250	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Centered	
GTET	BHSM	Borehole Size Source Tool	MSFL	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
CSNG	BHSM	Borehole Size Source Tool	MSFL	
DLLT-I Sonde	DLOK	Process Dual Laterolog?	Yes	
DLLT-I Sonde	DBOK	Process Dual Laterolog Borehole Corrections?	Yes	
DLLT-I Sonde	SBHD	Select Borehole Diam Source	Caliper	
DLLT-I Sonde	TPOS	Tool Position	Standoff	
DLLT-I Sonde	TMPC	Temperature Correction Type	Tool Value	
DLLT-I Sonde	DLOK	Calculate Dual Laterolog DI?	Yes	
DLLT-I Sonde	BHSM	Borehole Size Source Tool	MSFL	
MSFL	DLOK	Process MSFL?	Yes	
MSFL	SLPD	Use MSFL Slim Hole Pad?	Yes	
MSFL	SPDF	MSFL Slim Hole Pad K Factor	1.750	
MSFL	CLOK	Process Caliper Outputs?	Yes	
BOTTOM				
Data: KINDER_CD_40001 TPL_DLLT_CSNG\IDLE			Date: 02-Dec-14 19:02:50	

HALLIBURTON

PARAMETERS REPORT

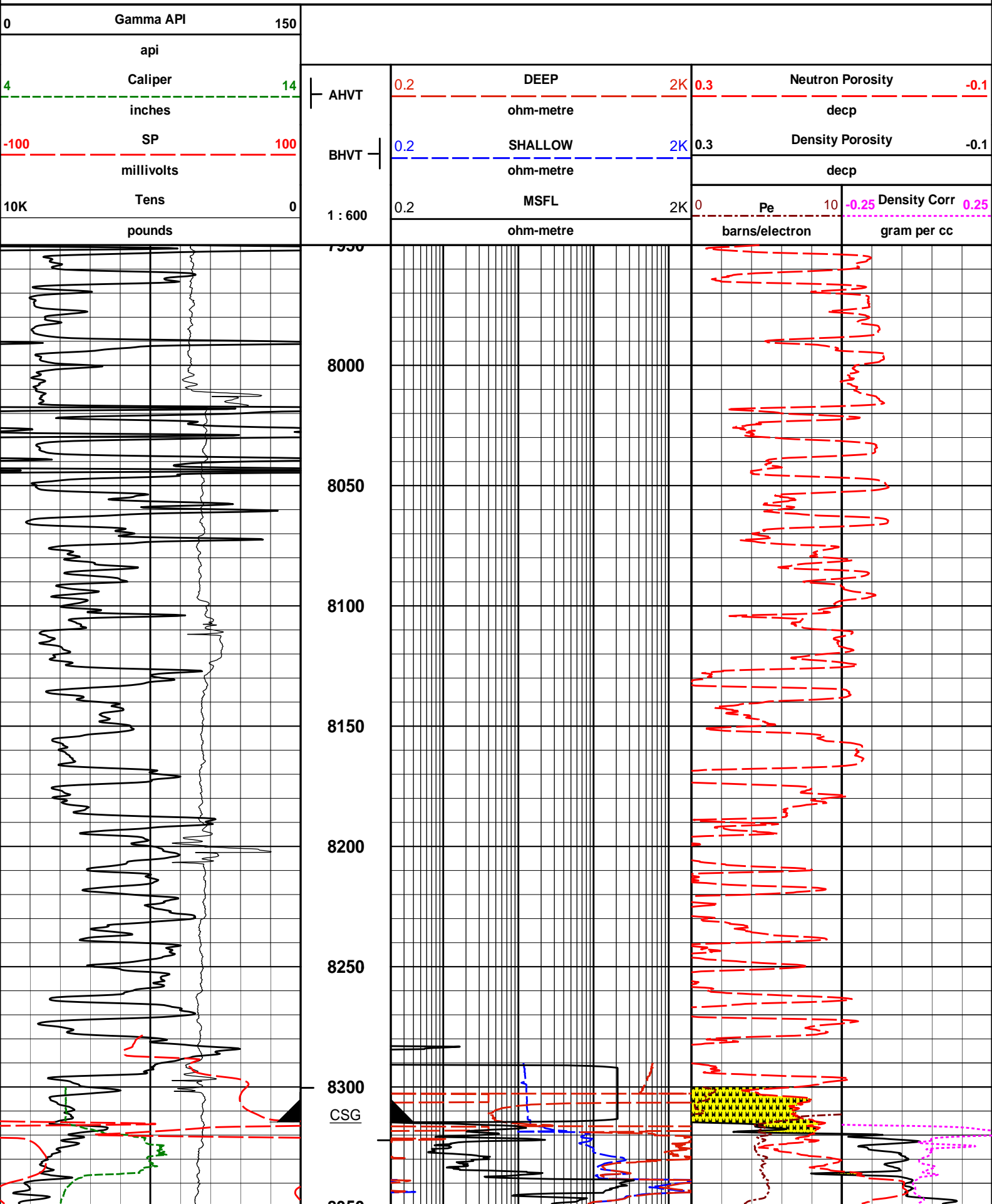
Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	6.000	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	8.900	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	54000.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.114	ohmm
	SHARED	TRM	Temperature of Mud	66.8	degF
	SHARED	CSD	Logging Interval in Cased?	No	

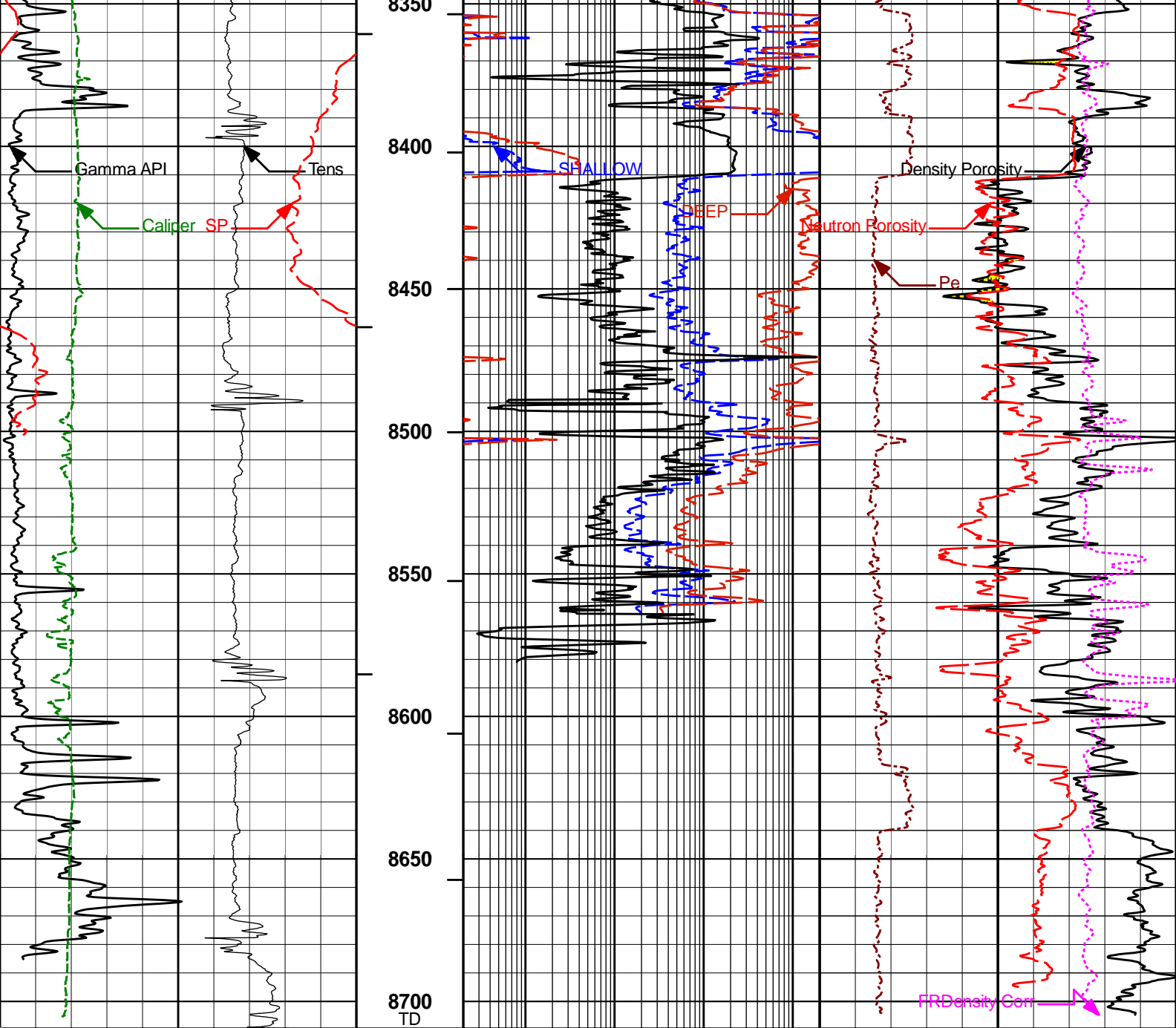
SHARED	CSD	Logging Interval Is Cased?	NO	
SHARED	ICOD	AHV Casing OD	4.500	in
SHARED	ST	Surface Temperature	30.0	degF
SHARED	TD	Total Well Depth	8725.00	ft
SHARED	BHT	Bottom Hole Temperature	180.0	degF
SHARED	SVTM	Navigation and Survey Master Tool	NONE	
SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
SHARED	TEMM	Temperature Master Tool	NONE	
Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.250	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
GTET	BHSM	Borehole Size Source Tool	SDLT	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DSNO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
BOTTOM_____				
Data: KINDER_CD_4\0002 TPL_DSN_SDL\003 03-Dec-14 20:30 Up @8710.3f			Date: 03-Dec-14 21:49:02	

HALLIBURTON

Plot Time: 03-Dec-14 21:53:18
Plot Range: 7950 ft to 8709.5 ft
Data: KINDER_CD_4\Well Based*\n
Plot File: \\COMPL2" MAIN

MAIN PASS 2" = 100'



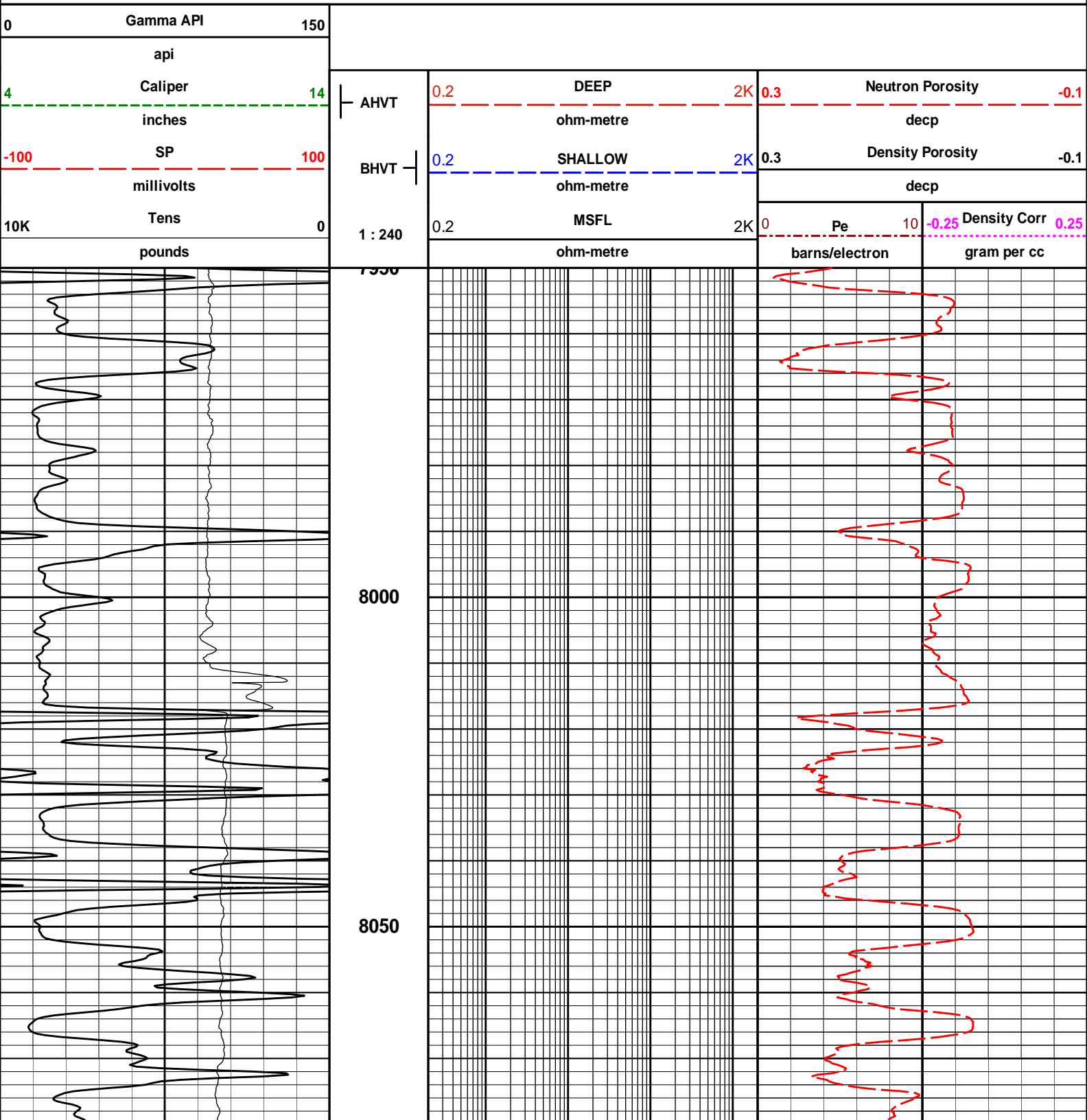


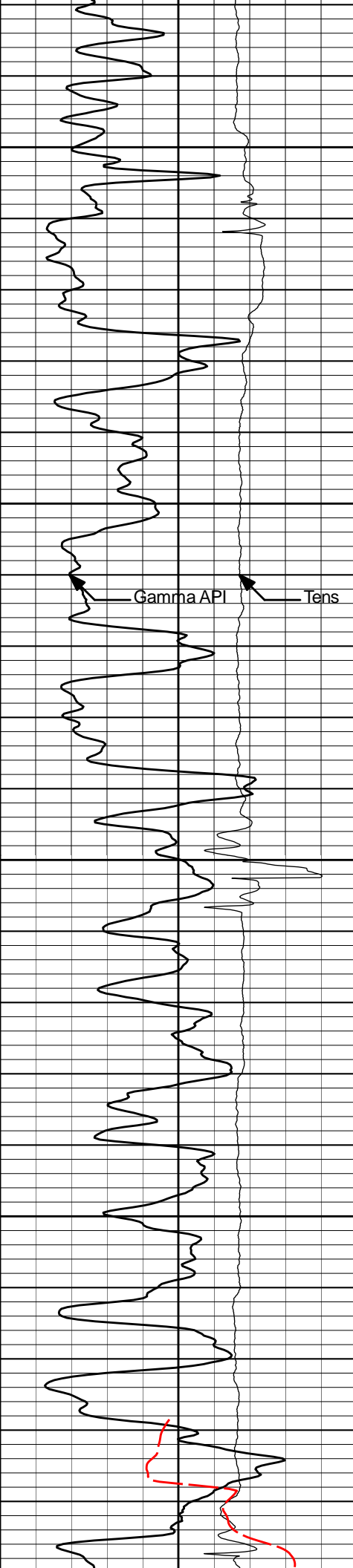
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	pounds				ohm-metre				barns/electron		gram per cc	
-100	SP	100	BHVT	0.2	SHALLOW	2K	0.3				Density Porosity	-0.1
	millivolts				ohm-metre						decip	
4	Caliper	14	AHVT	0.2	DEEP	2K	0.3				Neutron Porosity	-0.1
	inches				ohm-metre						decip	
0	Gamma API	150										
	api											

HALLIBURTON Plot Time: 03-Dec-14 21:53:20
 Plot Range: 7950 ft to 8709.5 ft
 Data: KINDER_CD_4\Well Based*
 Plot File: \\COMP2" MAIN

MAIN PASS 2" = 100'

MAIN PASS 5" = 100'





8100

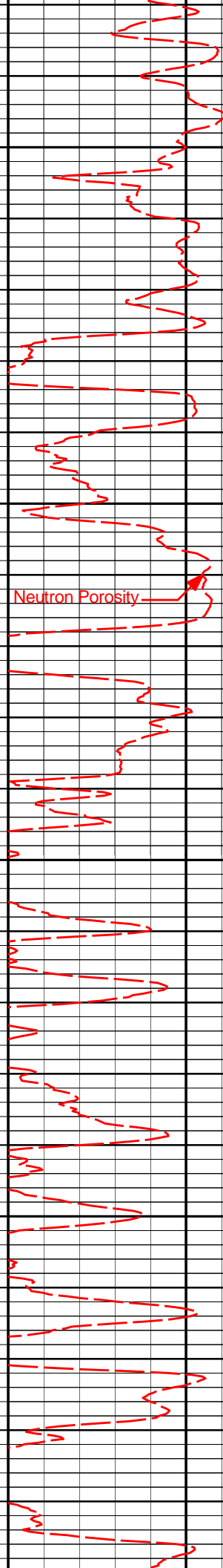
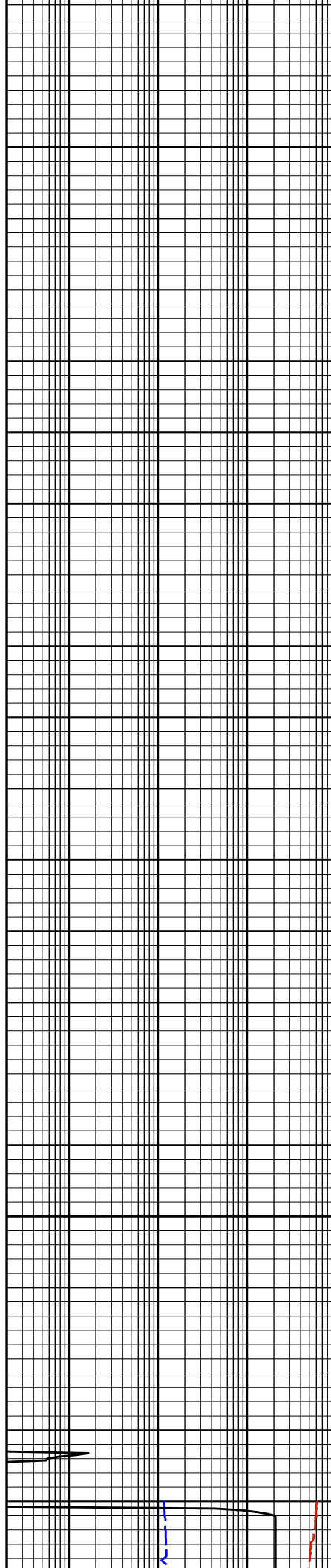
8150

Gamma API Tens

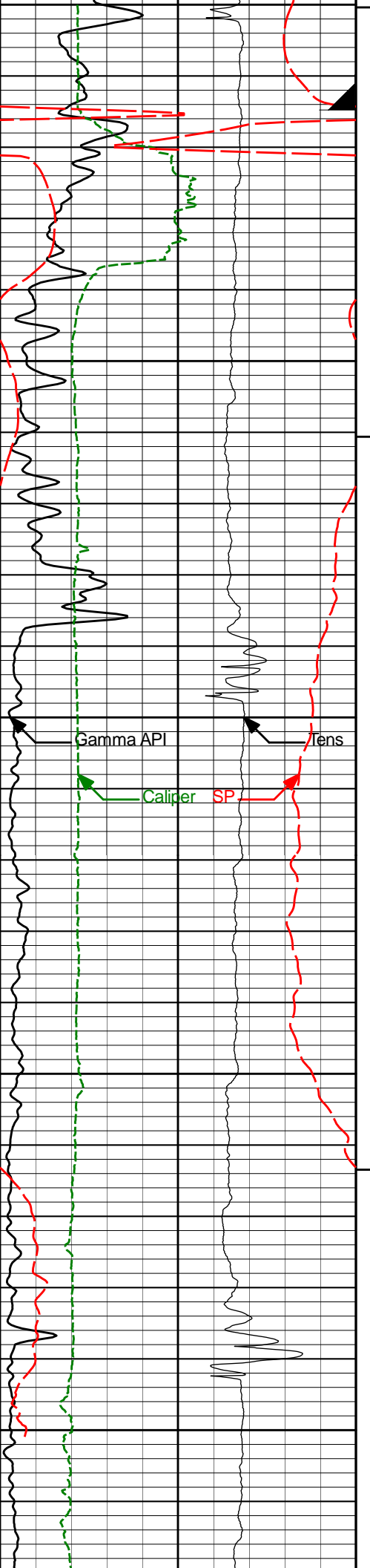
8200

8250

8300



Neutron Porosity



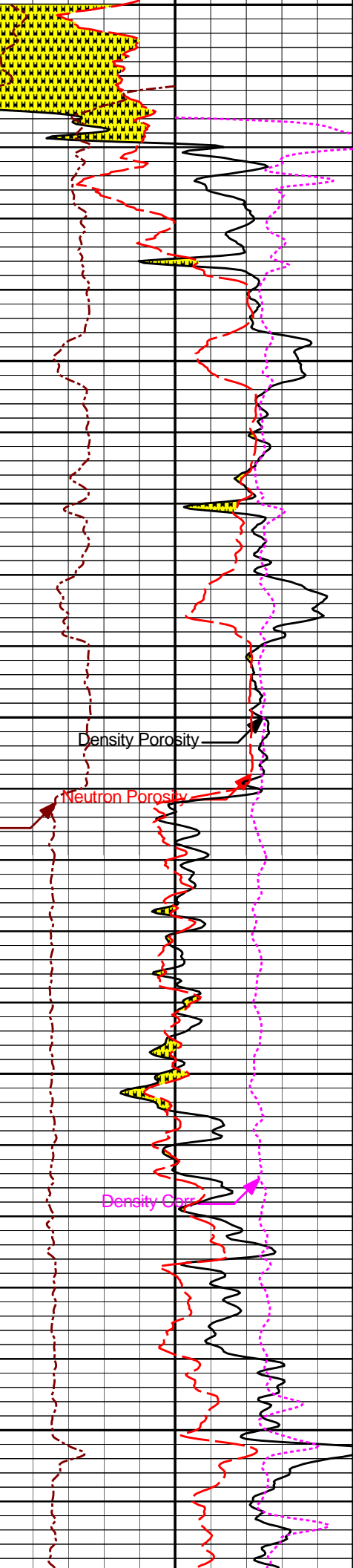
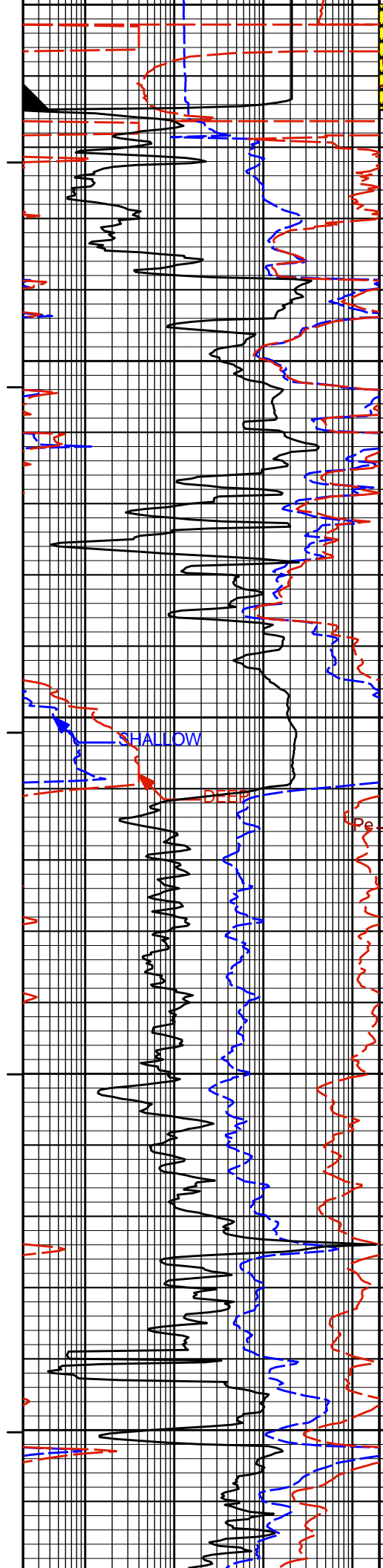
8300
CSG

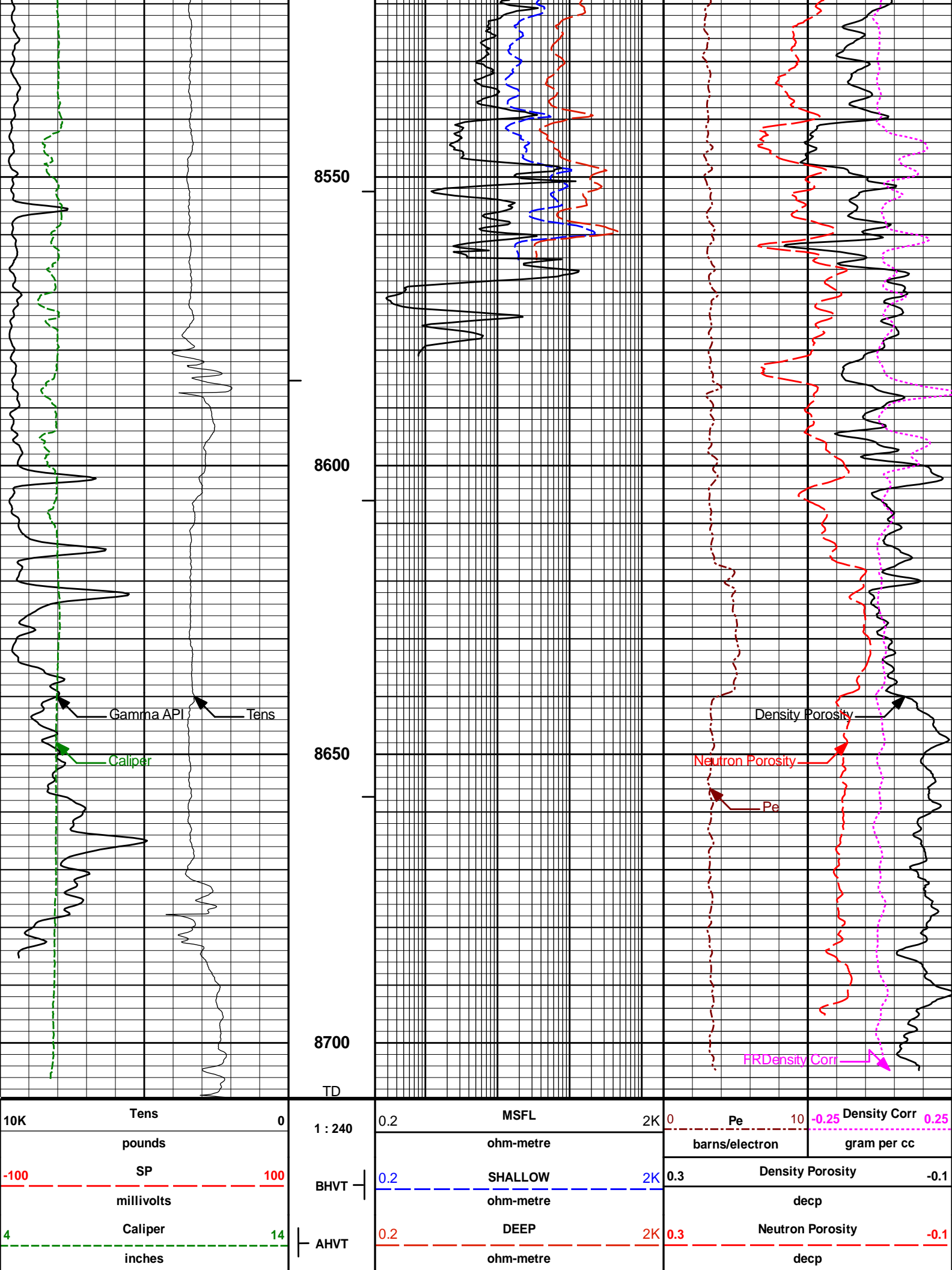
8350

8400

8450

8500





0	Gamma API	150	
	api		
<div> <div>HALLIBURTON</div> <div> Plot Time: 03-Dec-14 21:53:23 Plot Range: 7950 ft to 8709.5 ft Data: KINDER_CD_4\Well Based*\ Plot File: \\COMP\MAIN </div> </div>			
MAIN PASS 5" = 100'			
<div> <div>HALLIBURTON</div> <div>CALIBRATION REPORT</div> </div>			
NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11958949	Reference Calibration Date:	30-Sep-14 09:24:46
Engineer:	B. RIDDEL	Calibration Date:	01-Dec-14 07:12:41
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Calibrator Source S/N: MP051807-04 Calibrator API Reference:239.00 api Equivalent Calibrator API Reference:243.2 api			
	Measurement	Measured	Calibrated
	Background	27.7	27.7
	Background + Calibrator	270.8	270.9
	Calibrator	243.1	243.2
NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11958949	Reference Calibration Date:	01-Dec-14 07:12:41
Engineer:	B. RIDDEL	Calibration Date:	02-Dec-14 03:08:42
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Calibrator Source S/N: MP051807-04 Calibrator API Reference:239.00 api Equivalent Calibrator API Reference:243.2 api			
	Field Verification	Shop	Field
	Background	27.7	32.9
	Background + Calibrator	270.9	276.2
	Calibrator	243.2	243.3
	Shop	Field	Difference
	243.2	243.3	-0.1
			+/- 9.00
CSNG-FS SHOP CALIBRATION			
Tool Name:	CSNG - 10971168	Reference Calibration Date:	27-May-14 18:23:19
Engineer:	B. RIDDEL	Calibration Date:	02-Dec-14 03:00:38
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Source SN:	MP051807-04		
	TITANIUM CASE	Measured	Calibrated
			Units

60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.6	23.7	Channel #
583 KEV Peak Channel #	52.3	52.9	Channel #
2614 KEV Peak Channel #	213.2	216.4	Channel #
Calibrate Temperature	84.7	53.2	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 239.00 API
Calibrator Value: 271.4 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1454.2	CPS	340.2	293.2	API
Background	108.0	CPS	68.8	21.8	API

Gamma Ray Gain: 1.01
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name:	CSNG - 10971168	Reference Calibration Date:	02-Dec-14 03:00:38
Engineer:	B. RIDDEL	Calibration Date:	02-Dec-14 03:12:55
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.7	23.7	Channel #
583 KEV Peak Channel #	52.9	52.8	Channel #
2614 KEV Peak Channel #	216.4	216.3	Channel #
Calibrate Temperature	53.2	55.0	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 239.00 API
Calibrator Value: 271.4 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1457.6	CPS	293.2	293.0	API
Background	107.2	CPS	21.8	21.6	API

Gamma Ray Gain: 1.01
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL LATEROLOG SHOP CALIBRATION

Tool Name:	DLL T-J Sonda - 10731630	Reference Calibration Date:	14-Oct-14 11:18:22
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Tool Name:	DLLT-I Sonde - 10731630	Reference Calibration Date:	14-Oct-14 11:16:22
Engineer:	B. RIDDEL	Calibration Date:	14-Oct-14 11:24:52
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Host Tool Name:	DLLT-I Measurement - 11563863	Extra Host Tool Name1:	DLLT-I Power and Telemetry - 11527994

Measurement	Deep Measured	Deep Calibrated	Shallow Measured	Shallow Calibrated	Units
External Cal Point #1	1.03	1.04	1.02	1.00	ohmm
External Cal Point #2	119.19	119.47	100.22	99.63	ohmm
External Cal Point #3	1538.94	1541.79	1017.03	1019.96	ohmm
External Check Point	10.52	10.56	9.69	9.62	ohmm
Internal Reference	19.94	20.00	18.36	18.23	ohmm

DUAL LATEROLOG FIELD CALIBRATION			
Tool Name:	DLLT-I Sonde - 10731630	Reference Calibration Date:	14-Oct-14 11:24:52
Engineer:	B. RIDDEL	Calibration Date:	02-Dec-14 04:09:51
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Measurement	Deep Shop	Deep Field	Shallow Shop	Shallow Field	Units
Internal Reference	20.00	19.95	18.23	18.18	ohmm

PASS/FAIL SUMMARY			
Measurement	Difference	Tolerance	Pass/Fail
Internal Deep	0.04	+/- 0.8	Passed
Internal Shallow	0.05	+/- 0.8	Passed

MICRO SPHERICALLY FOCUSED LOG SHOP CALIBRATION			
Tool Name:	MSFL - 11555340	Reference Calibration Date:	18-Aug-14 13:39:01
Engineer:	M. LECUREUX	Calibration Date:	29-Oct-14 14:00:09
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Measurement	Measured	Calibrated	Units
External Cal Point #1	0.20	0.20	ohmm
External Cal Point #2	20.04	20.00	ohmm
External Cal Point #3	2062.07	2000.00	ohmm
Internal Reference	20.01	19.97	ohmm

MICRO SPHERICALLY FOCUSED LOG FIELD CALIBRATION			
Tool Name:	MSFL - 11555340	Reference Calibration Date:	29-Oct-14 14:00:09
Engineer:	B. RIDDEL	Calibration Date:	02-Dec-14 04:10:14
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Measurement	Shop	Field	Change	Control Limit On	Units
Internal Reference	19.97	19.96	-0.013	0.800	ohmm

PASS/FAIL SUMMARY	
Internal Reference:	Passed

CALIPER SHOP CALIBRATION			
Tool Name:	MSFL - 11555340	Reference Calibration Date:	14-Oct-14 11:04:10
Engineer:	B. RIDDEL	Calibration Date:	14-Oct-14 11:08:35
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

CALIBRATION RINGS AND INTERNAL	
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Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change
RING DIAMETER:			
Ring #1 (in)	8.36	8.25	0.1100
Ring #2 (in)	14.99	15.00	-0.0100
Hi/Lo Internal:			
Lo Internal (in)	4.38	4.21	0.1700
Hi Internal (in)	17.31	17.36	-0.0500

CALIPER FIELD CALIBRATION			
Tool Name:	MSFL - 11555340	Reference Calibration Date:	14-Oct-14 11:08:35
Engineer:	B. RIDDEL	Calibration Date:	02-Dec-14 04:11:42
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Lo Internal (in)	4.21	4.23	-0.019	+/- 0.500
Hi Internal (in)	17.36	17.36	0.000	+/- 0.500
PASS/FAIL SUMMARY				
Lo Internal Check:			Passed	
Hi Internal Check:			Passed	

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11958949						
Gamma Ray Calibrator	243.2	243.3	-----	-0.1	+/- 9.00	api
CSNG-10971168						
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	23.7	23.7	-----	0.0	-----	Channel #
583 KEV Peak Channel #	52.9	52.8	-----	0.1	-----	Channel #
2614 KEV Peak Channel #	216.4	216.3	-----	0.1	-----	Channel #
DLLT-I Sonde-10731630						
Deep Internal Ref.	20.00	19.95	-----	0.05	+/- 0.8	ohmm
Shallow Internal Ref.	18.23	18.18	-----	0.05	+/- 0.8	ohmm
MSFL-11555340						
MSFL Internal Ref.	19.97	19.96	-----	0.01	+/- 0.800	ohmm
Caliper Lo. Internal	4.21	4.23	-----	-0.02	+/- 0.500	in
Caliper Hi. Internal	17.36	17.36	-----	0.00	+/- 0.500	in
Data: KINDER_CD_4I0001 TPL_DLLT_CSNGVDLE					Date: 02-Dec-14 19:03:17	

HALLIBURTON	
CALIBRATION REPORT	

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11958949	Reference Calibration Date:	30-Sep-14 09:24:46
Engineer:	B. RIDDEL	Calibration Date:	01-Dec-14 07:12:41
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Calibrator Source S/N: MP051807-04
Calibrator API Reference:239.00 api
Equivalent Calibrator API Reference:243.2 api

Measurement	Measured	Calibrated	Units
Background	27.7	27.7	api
Background + Calibrator	270.8	270.9	api
Calibrator	243.1	243.2	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 11958949	Reference Calibration Date:	01-Dec-14 07:12:41
Engineer:	B. RIDDEL	Calibration Date:	02-Dec-14 03:08:42
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Calibrator Source S/N: MP051807-04
 Calibrator API Reference:239.00 api
 Equivalent Calibrator API Reference:243.2 api

Field Verification	Shop	Field	Units
Background	27.7	32.9	api
Background + Calibrator	270.9	276.2	api
Calibrator	243.2	243.3	api

Shop	Field	Difference	Tolerance
243.2	243.3	-0.1	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10993888	Reference Calibration Date:	13-Oct-14 08:47:48
Engineer:	P. DIMPFL	Calibration Date:	07-Nov-14 11:31:08
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-388
 Tank Serial Number: GJ WATER TANK
 Reference value assigned to Tank: 52.750
 Snow Block S/N: GJ SNOW BLOCK
 Calibration Tank Water Temperature: 64 degF
 Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.991	0.991	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2168	0.2169	0.0002	+/- 0.0020
Calibrated Ratio:	9.92	9.93	0.006	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0662	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	DSNT - 10993888	Reference Calibration Date:	07-Nov-14 11:31:08
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Tool Name: DSNT - 10993888		Reference Calibration Date: 07-Nov-14 11:31:06	
Engineer: B. RIDDEL	Calibration Date: 03-Dec-14 11:43:38		
Software Version: WL INSITE R4.2.0 (Build 2)	Calibration Version: 1		
Logging Source S/N: DSN-388			
Snow Block S/N: GJ SNOW BLOCK			
NEUTRON FIELD-CHECK SUMMARY			
	Shop	Field	Control Limit On Change
Snow-Block Porosity (decp):	0.0662	0.0721	0.0060 +/- 0.0150
PASS/FAIL SUMMARY			
Block Change Check:		Passed	
Snow Block Stat Check:		Passed	
Temperature Check:		Passed	

DENSITY CALIPER SHOP CALIBRATION			
Tool Name: SDLT - 10951300	Reference Calibration Date: 13-Oct-14 11:27:39		
Engineer: B. RIDDEL	Calibration Date: 12-Nov-14 19:23:48		
Software Version: WL INSITE R4.2.0 (Build 2)	Calibration Version: 1		
Host Tool Name: DSNT - 10993888			

CALIBRATION COEFFICIENTS				
Measurement	Previous Value	New Value	Control Limit On New Value	
Pad Offset	-2108.32	-1513.62	-7000.00 - -1000.00	
Pad Gain	0.0003701	0.0003479	0.000200 - 0.000600	
Arm Offset	-3945.82	-4316.89	-5000.00 - 3000.00	
Arm Gain	0.0005042	0.0005035	0.000300 - 0.000700	
Arm Power	-0.000001015	-0.000001436	-0.000010000 - 0.000010000	
The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER				
Tool Diameter: 4.50 in				
CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.91	2.00	0.09	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.49	6.50	0.01	+/- 0.20
Medium Ring (in)	8.24	8.25	0.01	+/- 0.20
Large Ring (in)	15.09	15.00	-0.09	+/- 0.20
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	
Ring-Measurement Check:			Passed	
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	

SDLT CALIPER FIELD CALIBRATION			
Tool Name: SDLT - 10951300	Reference Calibration Date: 12-Nov-14 19:23:48		
Engineer: B. RIDDEL	Calibration Date: 03-Dec-14 11:40:00		
Software Version: WL INSITE R4.2.0 (Build 2)	Calibration Version: 1		

MEASURED CALIPER VALUES			
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Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	0.00	+/- 0.10
Ring Diameter	8.25	8.31	0.06	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - 10865876	Reference Calibration Date:	13-Oct-14 10:30:22
Engineer:	P. DIMPFL	Calibration Date:	08-Nov-14 11:58:03
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: 5153GW		
Aluminum Block S/N: 63094	Density: 2.608g/cc	Pe: 3.230
Magnesium Block S/N: 63387	Density: 1.681g/cc	Pe: 2.600

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0253	1.0358	0.90 - 1.10
Near Dens Gain	1.0074	1.0139	0.90 - 1.10
Near Peak Gain	0.9953	1.0011	0.90 - 1.10
Near Lith Gain	0.9707	0.9906	0.90 - 1.10
Far Bar Gain	1.0151	1.0117	0.90 - 1.10
Far Dens Gain	1.0031	1.0022	0.90 - 1.10
Far Peak Gain	0.9961	0.9976	0.90 - 1.10
Far Lith Gain	0.9778	0.9786	0.90 - 1.10
Near Bar Offset	-0.0290	-0.1336	NONE
Near Dens Offset	0.1355	0.0637	NONE
Near Peak Offset	0.2295	0.1592	NONE
Near Lith Offset	0.4194	0.2304	NONE
Far Bar Offset	-0.0072	0.0266	NONE
Far Dens Offset	0.0829	0.0920	NONE
Far Peak Offset	0.1305	0.1164	NONE
Far Lith Offset	0.2505	0.2428	NONE
Near Bar Background	861.96	860.45	700 - 1450
Near Dens Background	288.35	288.93	230 - 480
Near Peak Background	128.16	126.60	100 - 210
Near Lith Background	156.39	155.43	125 - 260
Far Bar Background	529.55	528.69	450 - 900
Far Dens Background	206.96	206.75	175 - 345
Far Peak Background	81.94	81.30	70 - 140
Far Lith Background	85.75	85.45	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.694	1.681	-0.013	+/- 0.015
Pe	2.447	2.555	0.108	+/- 0.150
ALUMINUM				
Density (g/cc)	2.622	2.608	-0.013	+/- 0.01500

Density (g/cc)	2.620	2.608	-0.012	+/- 0.01500
Pe	3.071	3.175	0.104	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0018	+/- 0.0110	-0.0006	+/- 0.0140
Magnesium Block	-0.0007	+/- 0.0110	-0.0027	+/- 0.0140
Aluminum Block	-0.0013	+/- 0.0110	0.0004	+/- 0.0140
Resolution	9.01	6.00 - 11.50	9.54	6.00 - 11.50
Internal Verifier(B+D+P+L)	1431	1200 - 2700	902	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK			
Tool Name:	SDLT Pad - 10865876	Reference Calibration Date:	08-Nov-14 11:58:03
Engineer:	B. RIDDEL	Calibration Date:	03-Dec-14 11:37:38
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Pad Temperature: 47.1 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1431.407	1430.351	-1.056	15.268
Far (B+D+P+L) cps	902.190	903.225	1.035	16.327
Near Resolution	9.01	9.32	0.310	0.50
Far Resolution	9.54	9.78	0.240	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed


CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11958949						
Gamma Ray Calibrator	243.2	243.3	-----	-0.1	+/- 9.00	api
DSNT-10993888						
Snow-Block Porosity	0.0662	0.0721	-----	-0.0059	+/- 0.0150	decp
SDLT-10951300						
Pad Extension	3.75	3.75	-----	0.00	+/-0.10	in
Ring Diameter	8.25	8.31	-----	-0.06	+/-0.15	in
SDLT Pad-10865876						
Near(B+D+P+L)	1431.407	1430.351	-----	1.056	+/-15.268	cps

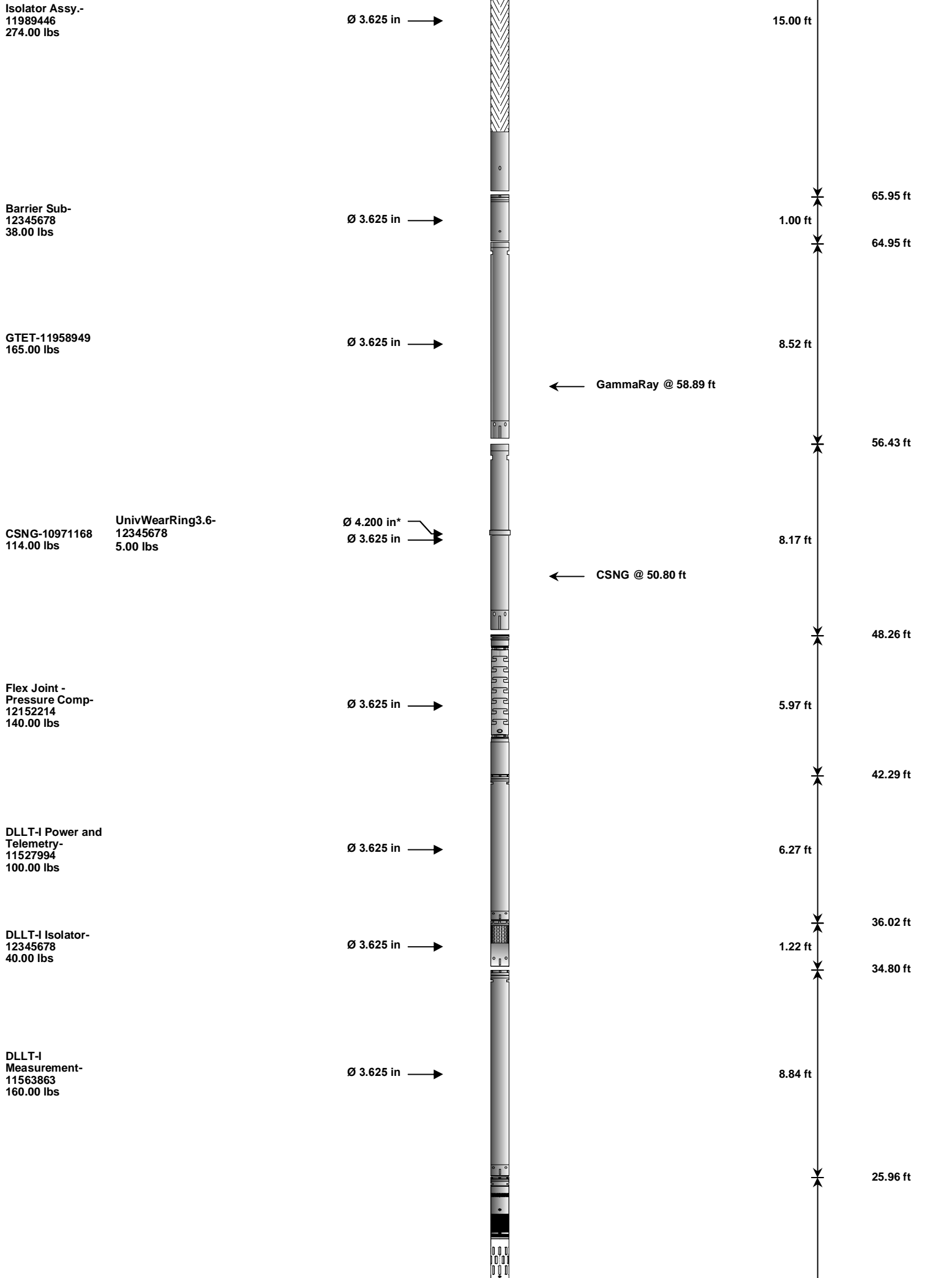
Near(B+D+P+L)	1431.407	1430.331	-----	1.035	+/-15.200	cps
Far(B+D+P+L)	902.190	903.225	-----	-1.035	+/-16.327	cps

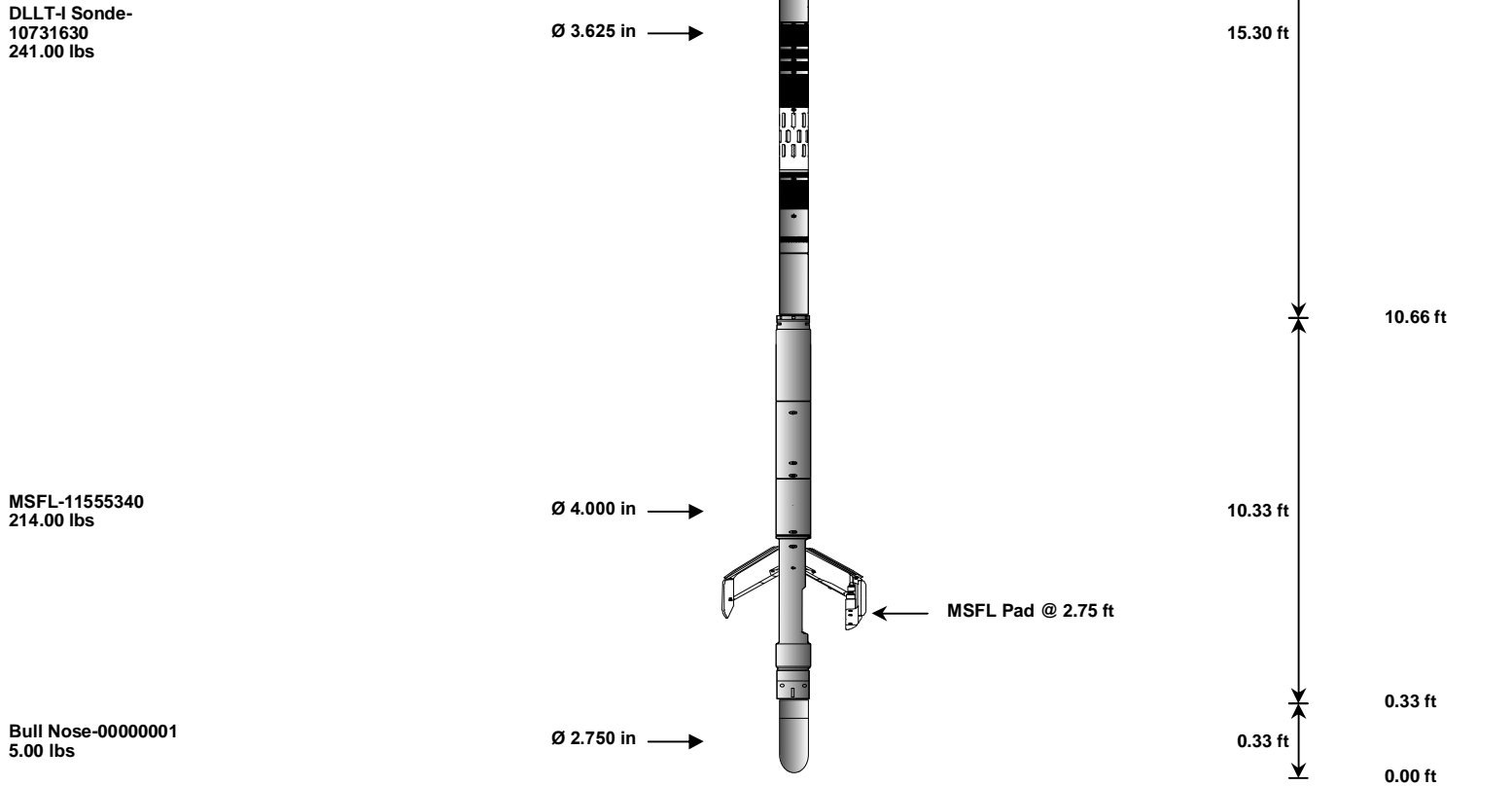
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HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length	
Spacer-12345678 100.00 lbs	Regal Standoff 6_75-00000001 20.00 lbs	Ø 3.625 in Ø 5.000 in*			4.70 ft	120.64 ft	
							115.94 ft
Flex Joint - Pressure Comp-10756977 140.00 lbs		Ø 3.625 in				5.97 ft	
							109.97 ft
DTDD-10267604 90.00 lbs		Ø 3.625 in		← Load Cell @ 108.88 ft ← Pad Locator @ 107.29 ft	3.66 ft		106.31 ft
							106.31 ft
HDDS-A-00000001 125.00 lbs		Ø 4.060 in				4.13 ft	
							102.19 ft
Isolator Assy.-11987166 274.00 lbs		Ø 3.625 in				15.00 ft	
							87.19 ft
Return Electrode-11037643 57.00 lbs		Ø 3.625 in			2.50 ft	84.69 ft	
						84.69 ft	
SP Sub-11057551 60.00 lbs		Ø 3.625 in	← SP @ 82.91 ft	3.74 ft		80.95 ft	
						80.95 ft	

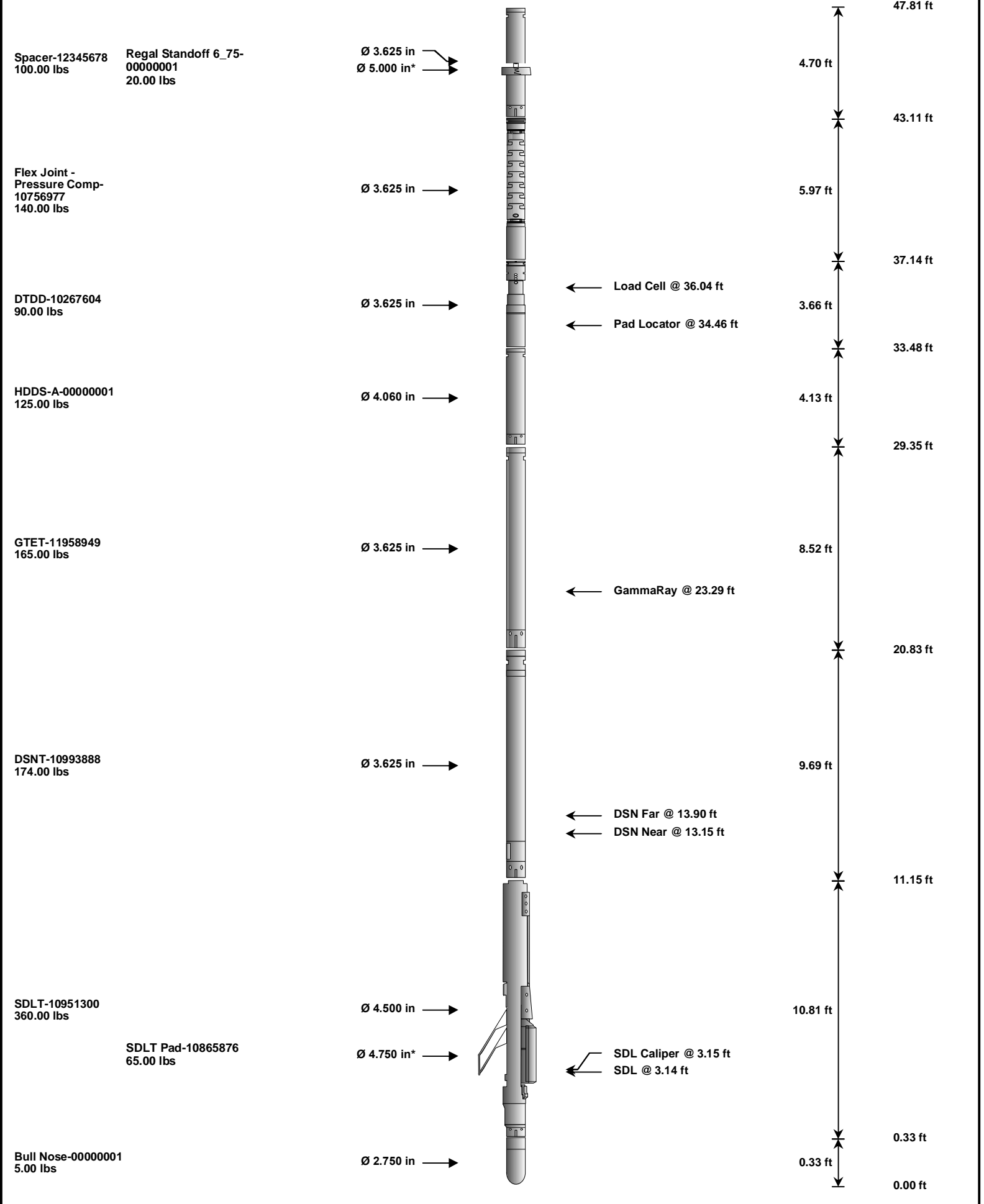




Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
SPC	Test		12345678	100.00	4.70	115.94	100.00
RSOF	Regal Standoff 6.75in		00000001	20.00	0.52	* 117.76	300.00
FLEX	Flex Joint - Pressure Compensated		10756977	140.00	5.97	109.97	300.00
DTDD	Downhole Tension Device		10267604	90.00	3.66	106.31	300.00
HDDS-A	Heavy Duty DITS Swivel tool.		00000001	125.00	4.13	102.19	300.00
ISA	Isolator Assembly - Rigid Bridle		11987166	274.00	15.00	87.19	300.00
RE	Return Electrode - Rigid Bridle		11037643	57.00	2.50	84.69	300.00
SP	SP Sub		11057551	60.00	3.74	80.95	300.00
ISA	Isolator Assembly - Rigid Bridle		11989446	274.00	15.00	65.95	300.00
w	Barrier Sub - Rigid Bridle		12345678	38.00	1.00	64.95	300.00
GTET	Gamma Telemetry Tool		11958949	165.00	8.52	56.43	60.00
CSNG	Compensated Spectral Natural Gamma		10971168	114.00	8.17	48.26	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch		12345678	5.00	0.35	* 52.34	300.00
FLEX	Flex Joint - Pressure Compensated		12152214	140.00	5.97	42.29	300.00
DLLT	Dual Laterolog Power and Telemetry		11527994	100.00	6.27	36.02	100.00
DLLT	Dual Laterolog Isolator		12345678	40.00	1.22	34.80	100.00
DLLT	Dual Laterolog Measurement		11563863	160.00	8.84	25.96	100.00
DLLT	Dual Laterolog Sonde		10731630	241.00	15.30	10.66	100.00
MSFL	Micro Spherically Focused Log		11555340	214.00	10.33	0.33	60.00
BLNS	Bull Nose		00000001	5.00	0.33	0.00	300.00
Total				2,362.00	120.64		

* Not included in Total Length and Length Accumulation.

Data: KINDER_CD_4\0001 TPL_DLLT_CSNG\IDLE Date: 02-Dec-14 17:07:04



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
SPC	Test		12345678	100.00	4.70	43.11	100.00
RSOF	Regal Standoff 6.75in		00000001	20.00	0.52	*	300.00
FLEX	Flex Joint - Pressure Compensated		10756977	140.00	5.97	37.14	300.00

DTDD	Downhole Tension Device	10267604	90.00	3.66	33.48	300.00
HDDS-A	Heavy Duty DITS Swivel tool.	00000001	125.00	4.13	29.35	300.00
GTET	Gamma Telemetry Tool	11958949	165.00	8.52	20.83	60.00
DSNT	Dual Spaced Neutron	10993888	174.00	9.69	11.15	60.00
SDLT	Spectral Density Tool	10951300	360.00	10.81	0.33	60.00
SDLP	Density Insite Pad	10865876	65.00	2.55 *	2.54	60.00
BLNS	Bull Nose	00000001	5.00	0.33	0.00	300.00
Total			1,244.00	47.81		
						* Not included in Total Length and Length Accumulation.
Data: KINDER_CD_4\0002 TPL_DSN_SDL\003 03-Dec-14 20:30 Up @8710.3f						Date: 03-Dec-14 21:49:25

COMPANY	KINDER MORGAN CO2 CO LP		
WELL	CD 4		
FIELD	MCELMO		
COUNTY	MONTEZUMA	STATE	CO
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY DUAL LATEROLOG MICRO-SPHERICALLY FOCUSED LOG	