



Well Services  
E-LINE

RADIAL CEMENT BOND  
GAMMA RAY  
CCL LOG

Company NOBLE ENERGY  
Well HERBSTER 3-35  
Field WATTENBERG  
County WELD State CO

Location: API #: 05-123-13017  
NE/NW  
LAT. 40.36116 LONG. -104.63269  
SEC 35 TWP 5N RGE 65W  
Permanent Datum GL Elevation 4,653'  
Log Measured From K.B. OF 11'  
Drilling Measured From KELLY BUSHING  
Other Services  
K.B. 4,664'  
D.F. 4,663'  
G.L. 4,653'

Company NOBLE ENERGY  
Well HERBSTER 3-35  
Field WATTENBERG  
County WELD  
State CO

Date 11-13-2018  
Run Number ONE  
Depth Driller 7,086'  
Depth Logger 4,704'  
Bottom Logged Interval 4,700'  
Top Log Interval 3,570'  
Open Hole Size 7 7/8"  
Type Fluid WATER  
Density / Viscosity 1.0  
Max. Recorded Temp. 149.495 DEG.F.  
Estimated Cement Top NA  
Time Well Ready ON ARRIVAL  
Time Logger on Bottom N/A  
Equipment Number 3813  
Location GREELEY, CO  
Recorded By JKERR  
Witnessed By T.HAMACHER

Borehole Record  
Run Number Bit From To Size Weight Tubing Record From To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	8 5/8"	24#	SURFACE	314'
Prot. String				
Production String	4 1/2"	11.6#	SURFACE	7,086'
Liner				

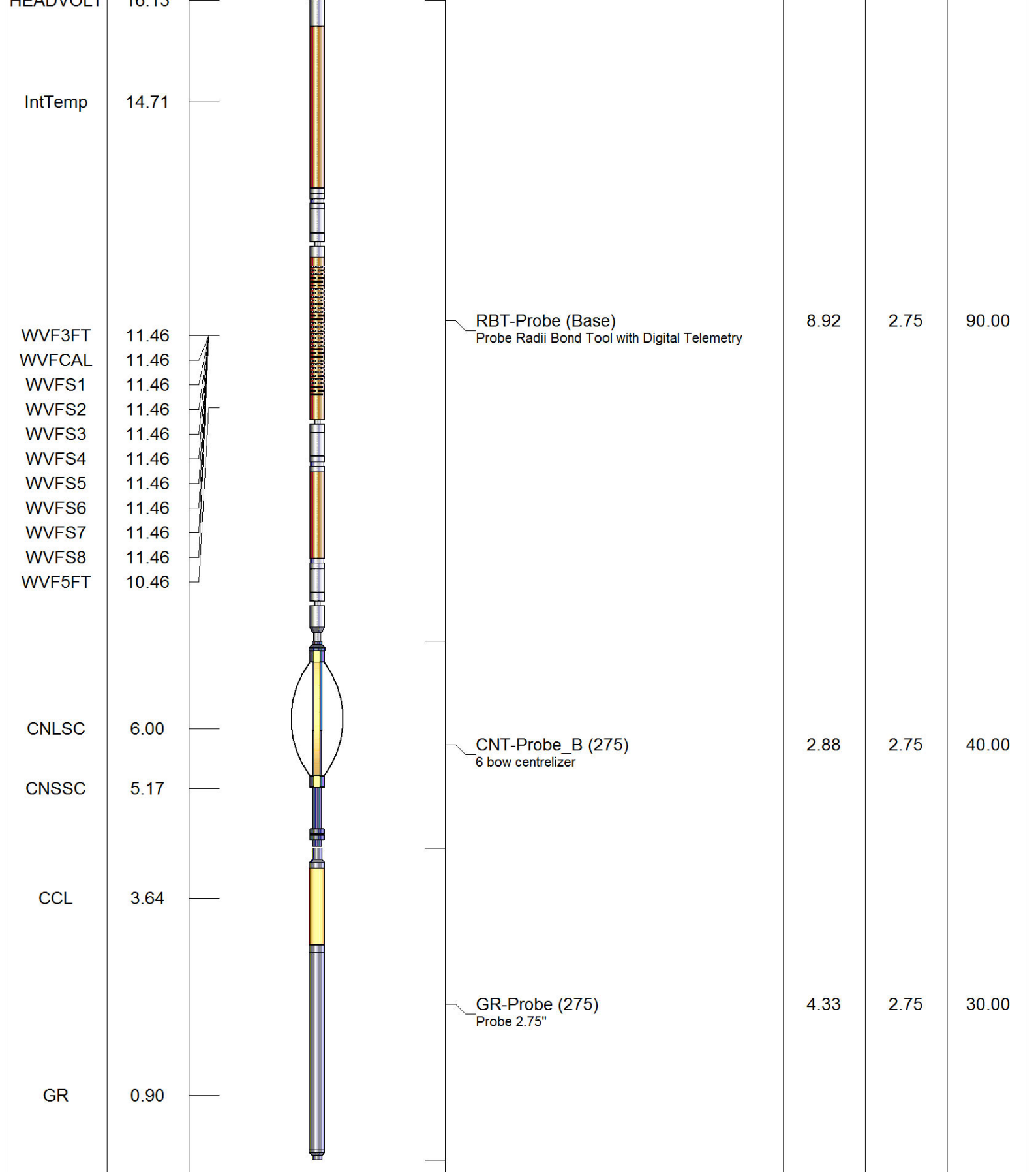
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

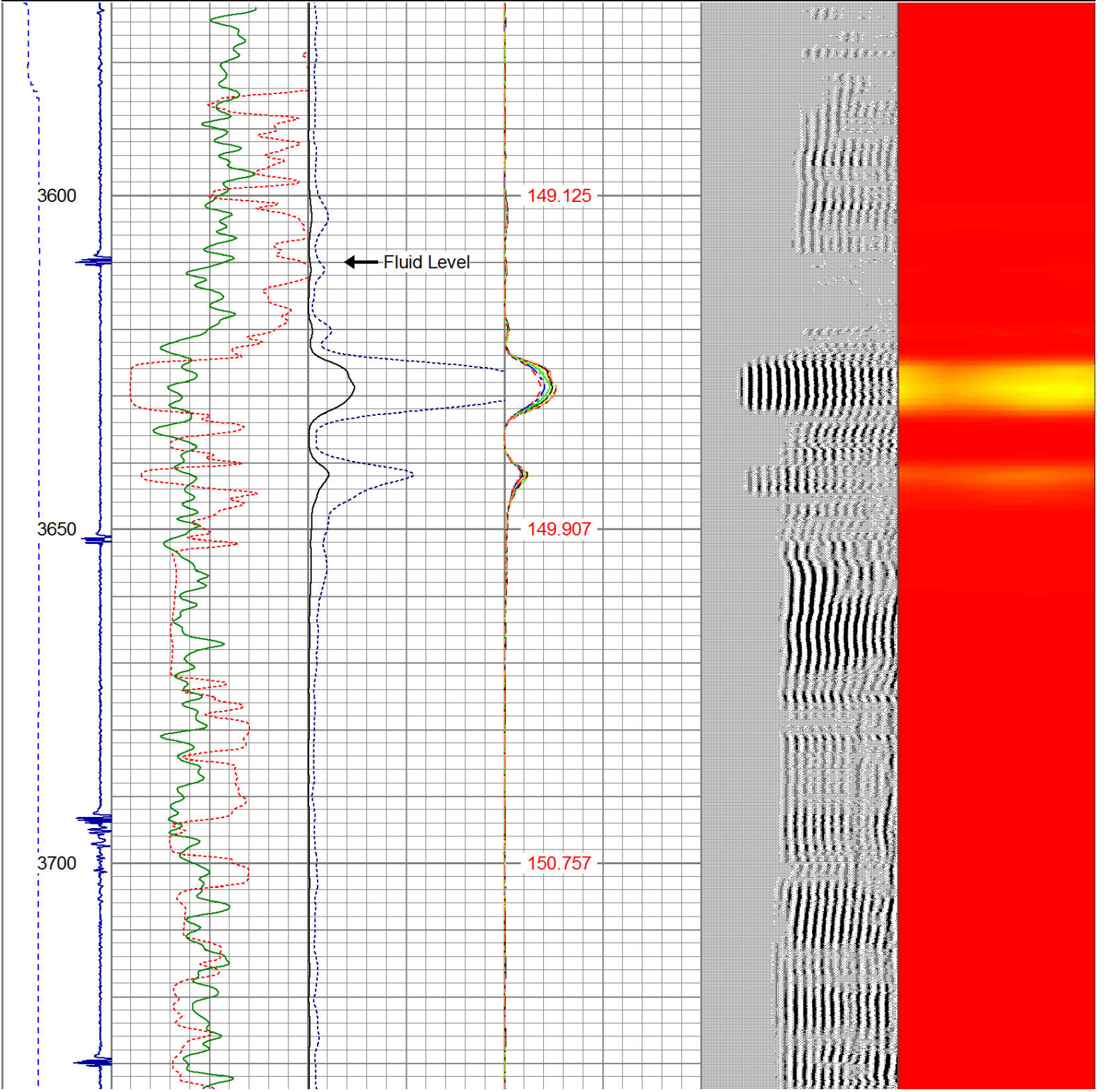
RAN CBL TO VERIFY CEMENT COVERAGE  
CORRELATED TO BASIN OPERATING COMPANY CBL RAN ON 6-18-1995

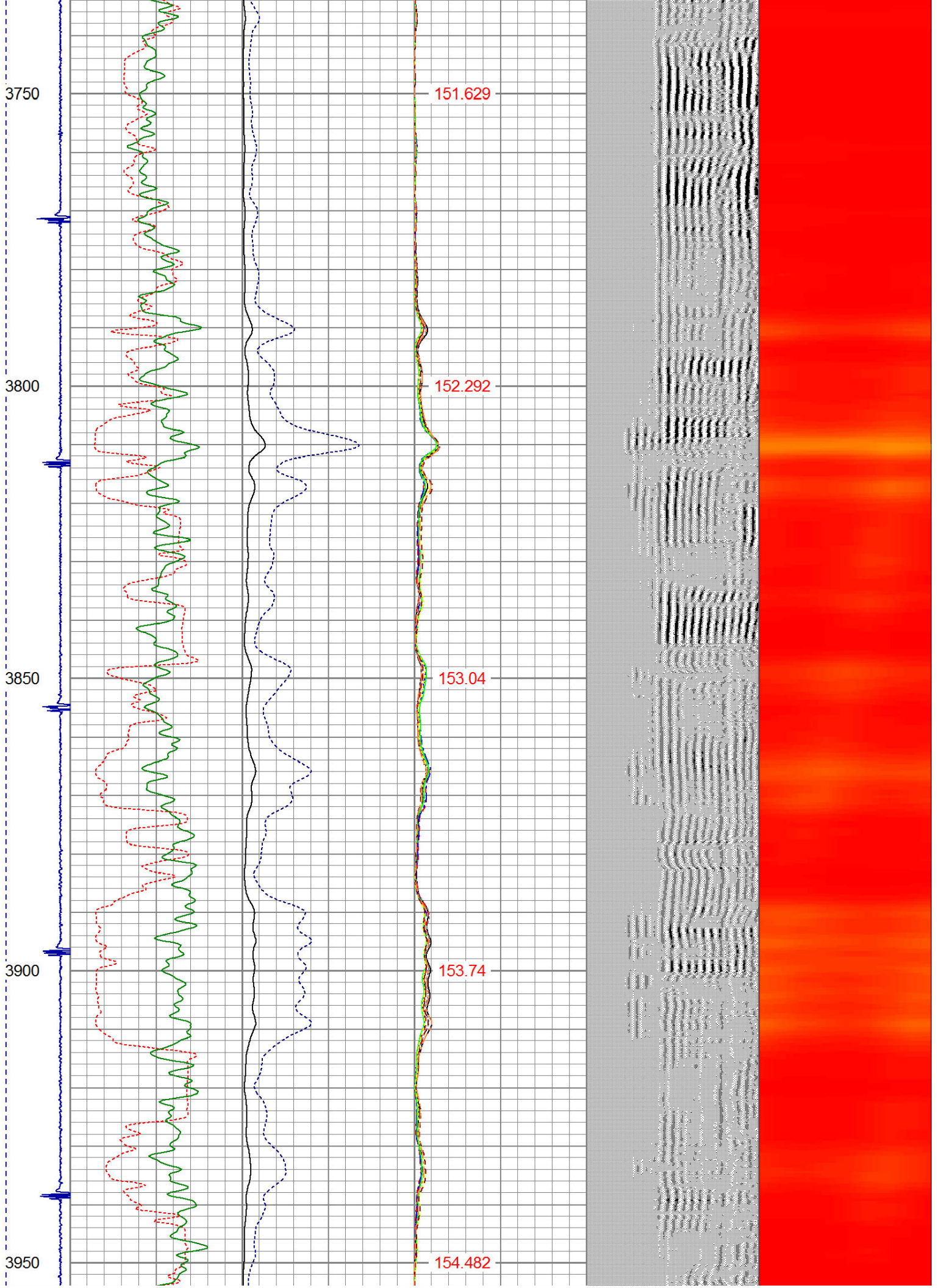
Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			1_4	1.00	1.36	5.00

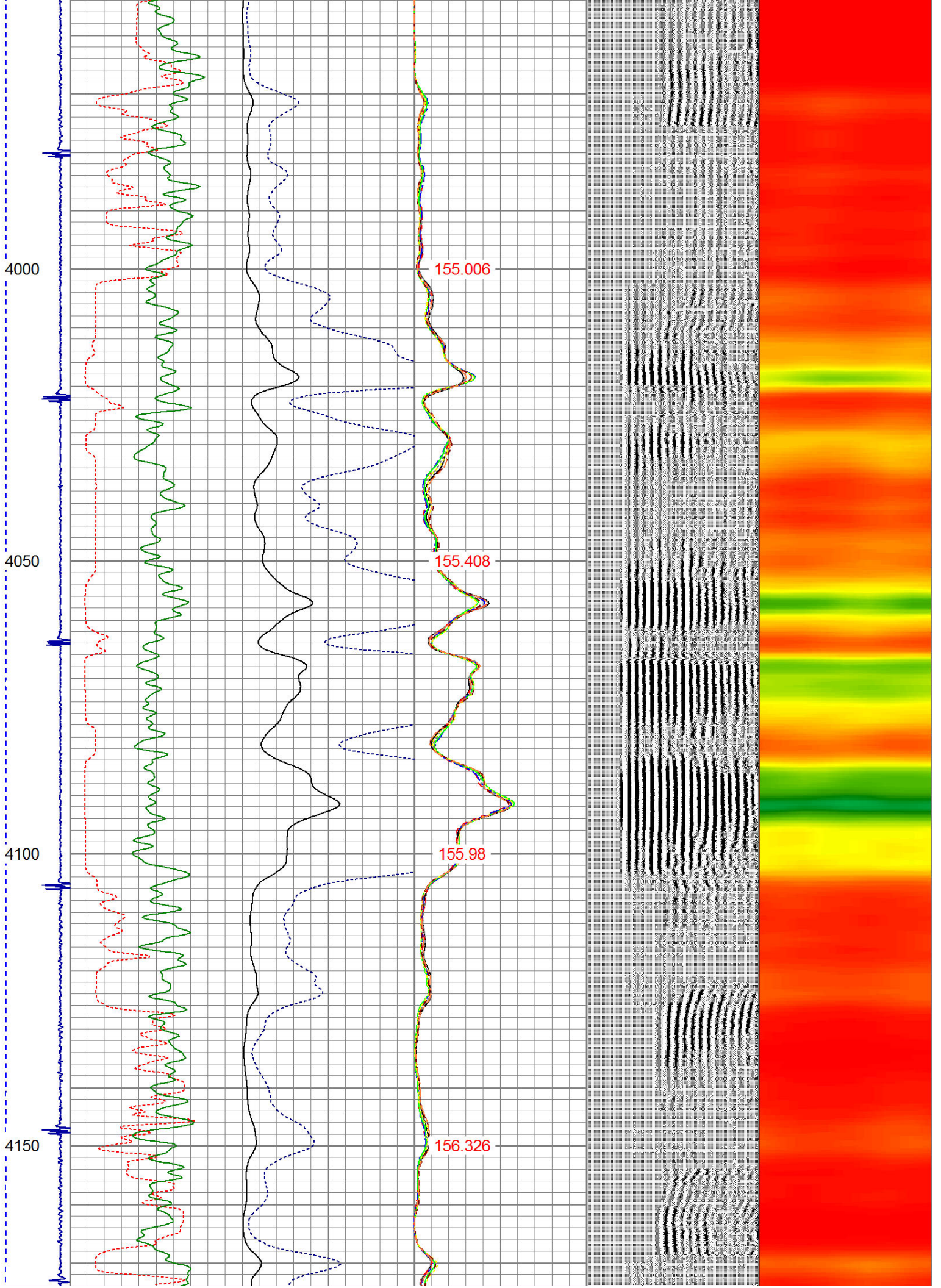


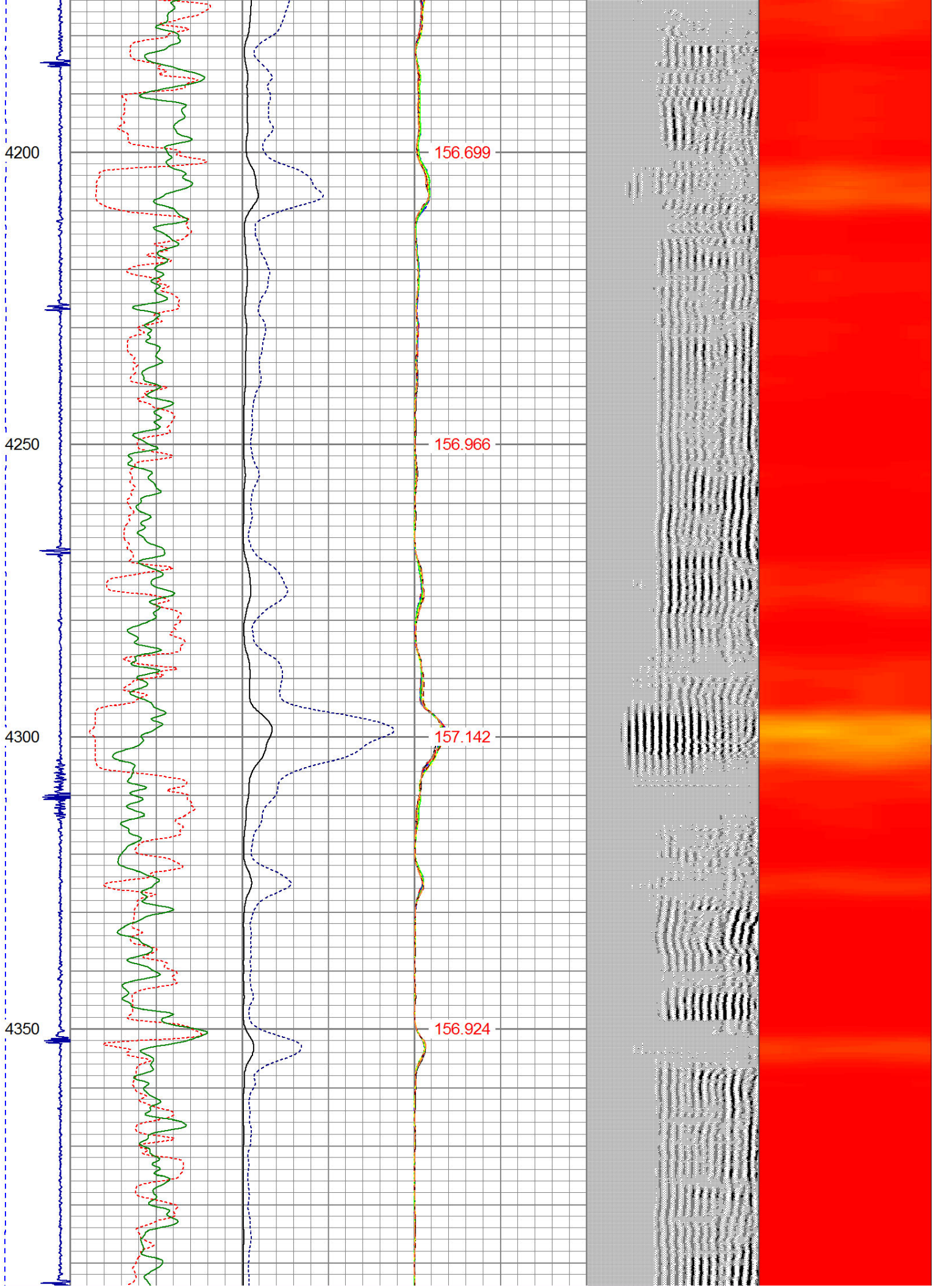
Dataset: herbster 3-35.db: field/well/run1/pass10  
 Total Length: 17.13 ft  
 Total Weight: 165.00 lb  
 O.D.: 2.75 in

-9	CCL	1	200	TT (usec)	1000	0	AMP (mV)	100	0	AMPS1	100	200	VDL	1200	1	Cement Map	8
	LSPD		0	GR (GAPI)	200	0	AMPx5 (mV)	20	0	AMPS2	100				1		100
	(ft/min)		200	GR (GAPI)	400				0	AMPS3	100						
0		250							0	AMPS4	100						
									0	AMPS5	100						
									0	AMPS6	100						
									0	AMPS7	100						
									0	AMPS8	100						
										IntTemp							
										(degF)							









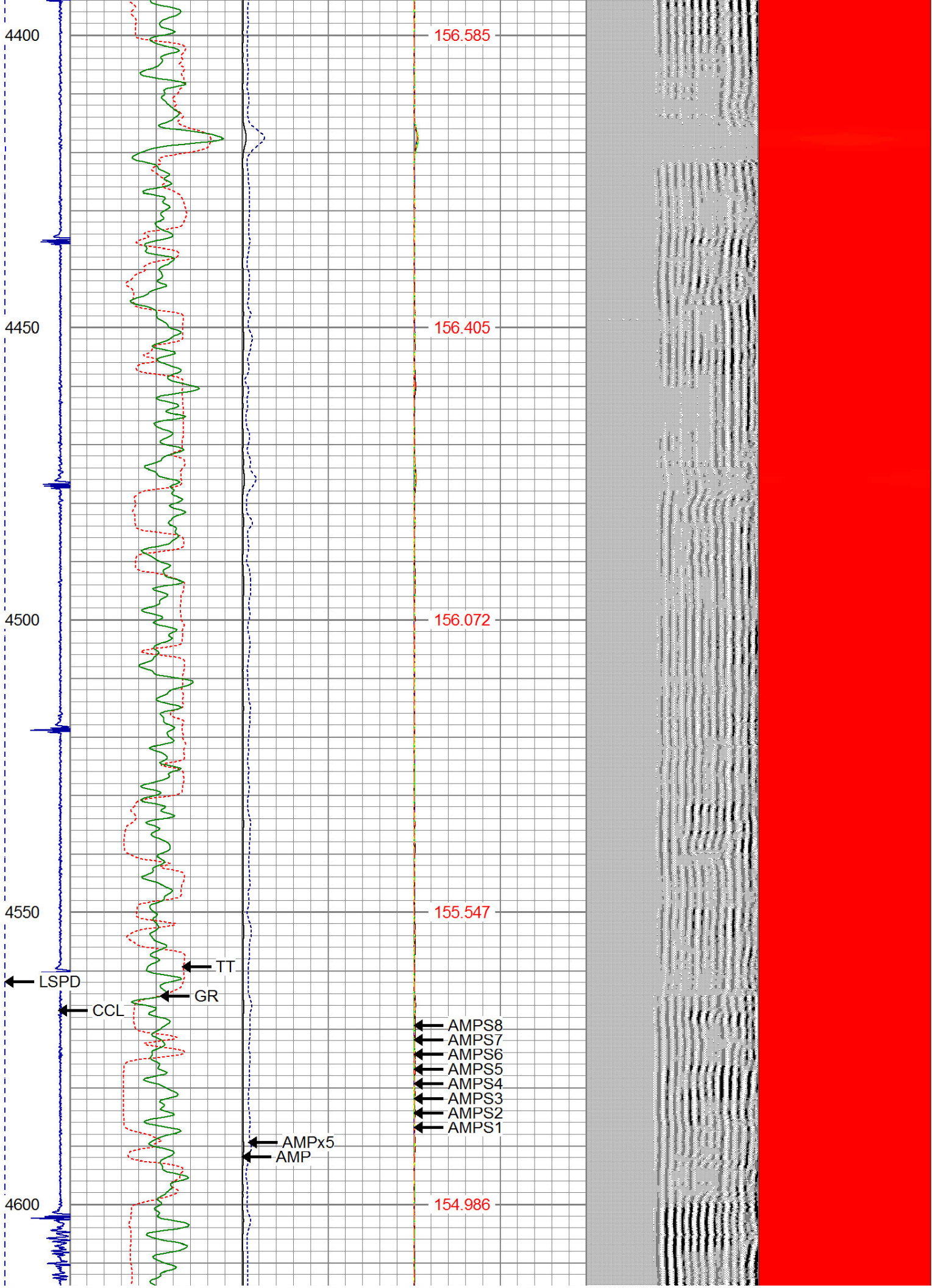
4400  
4450  
4500  
4550  
4600

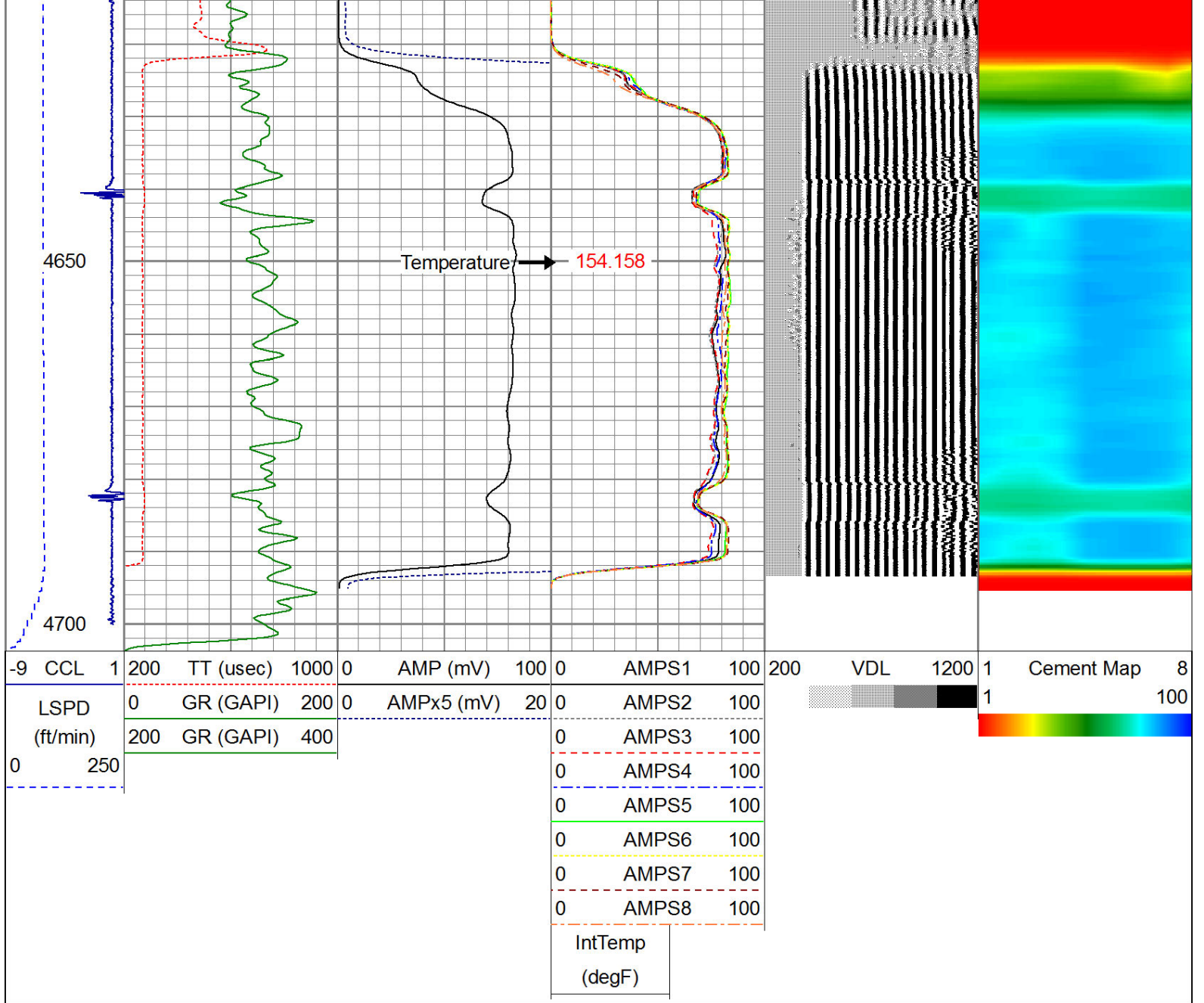
156.585  
156.405  
156.072  
155.547  
154.986

LSPD  
CCL  
GR  
TT

AMPS8  
AMPS7  
AMPS6  
AMPS5  
AMPS4  
AMPS3  
AMPS2  
AMPS1

AMPx5  
AMP





### Calibration Report

Database File: herbster 3-35.db  
 Dataset Pathname: pass10  
 Dataset Creation: Tue Nov 13 14:23:20 2018 by Log SCH 120126

### Gamma Ray Calibration Report

Serial Number: 275  
 Tool Model: Probe  
 Performed: Tue Sep 23 07:13:12 2014

Calibrator Value: 100.0 GAPI

Background Reading: 35.0 cps  
 Calibrator Reading: 160.0 cps

Sensitivity: 1.0000 GAPI/cps

### Compensated Neutron Calibration Report

Serial Number: 275  
 Tool Model: Probe\_B

Detector	Readings	Target	Normalization
Short Space	5001.20 cps	0.00 cps	1.0000
Long Space	1029.31 cps	0.00 cps	1.0000

## PRE-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	
3)	Short Space	cps		
	Long Space	cps	pu	

## POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

## Segmented Cement Bond Log Calibration Report

Serial Number: Base  
Tool Model: Probe  
Calibration Casing Diameter: 4.500 in  
Calibration Depth: 29.143 ft

Master Calibration, performed Tue Nov 13 13:36:36 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.575	1.000	81.196	50.932	1.000
CAL	0.000	1.524				
5'	0.000	1.711	1.000	81.196	46.866	1.000
SUM						
S1	0.000	1.515	0.500	81.196	53.256	0.500
S2	0.000	1.549	0.500	81.196	52.101	0.500
S3	0.000	1.579	0.500	81.196	51.105	0.500
S4	0.000	1.579	0.500	81.196	51.095	0.500
S5	0.000	1.581	0.500	81.196	51.056	0.500
S6	0.000	1.581	0.500	81.196	51.043	0.500
S7	0.000	1.560	0.500	81.196	51.743	0.500
S8	0.000	1.535	0.500	81.196	52.580	0.500

Internal Reference Calibration, performed Tue Jun 05 07:53:42 2012:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	1.524	1.000	0.000

Air Zero Calibration, performed Tue Nov 13 13:36:00 2018:

	Raw (v)	Calibrated (v)	Results
	<u>Zero</u>	<u>Zero</u>	<u>Offset</u>
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000



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E - L I N E

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County WELD  
State CO