



PIONEER
Pioneer Energy Services

RADIAL BOND LOG WITH GAMMA RAY

Comp. **RENEGADE OIL AND GAS LLC.**
Well **THORNBURG #1-X**
Field **ZENITH**
Co. **ADAMS**
State **COLORADO**

Company **RENEGADE OIL AND GAS LLC.**
Well **THORNBURG #1-X**
Field **ZENITH**
County **ADAMS** State **COLORADO**

Location: API #: 05-001-07487 Other Services

SEC 24 TWP 3S RGE 63W
NE- NW
Permanent Datum GL
Log Measured From GL 10' Elevation 5409'
Drilling Measured From KB Above Perm. Datum
K.B. 5419'
D.F. 5418'
G.L. 5409'

Date of Service 1 APR. 2016

Run Number TWO

Depth Driller or PBTD 7620'

Depth Logger 7564'

Bottom Log Interval 7560'

Top Log Interval 6454'

Open Hole Size N/A

Type Fluid WATER

Fluid Level N/A

Fluid Density N/A

Max. Recorded Temperature N/A

Max. Wellhead Pressure ZERO

Wellhead Connection N/A

Estimated Cement Top

Unit Number 129

Wireline Size 9/32

Location FT. MORGAN

Recorded By CORY BURNS

Witnessed By

Size

Wt/Ft

Top

Bottom

Tubing Record

8.625

24#

SURFACE

Surface Casing

4.5

11.6#

SURFACE

Production Casing

7620'

Liner Record

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

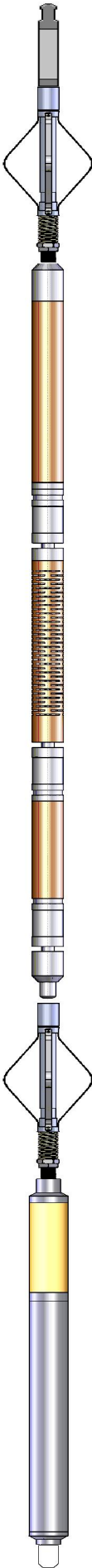
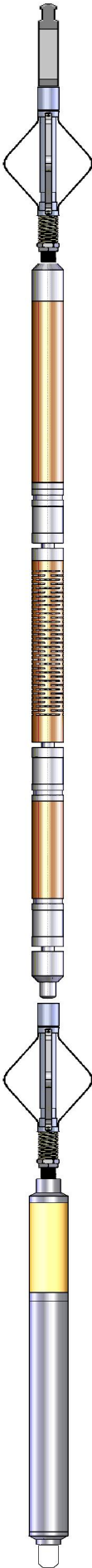
THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew




Tool Data - Services

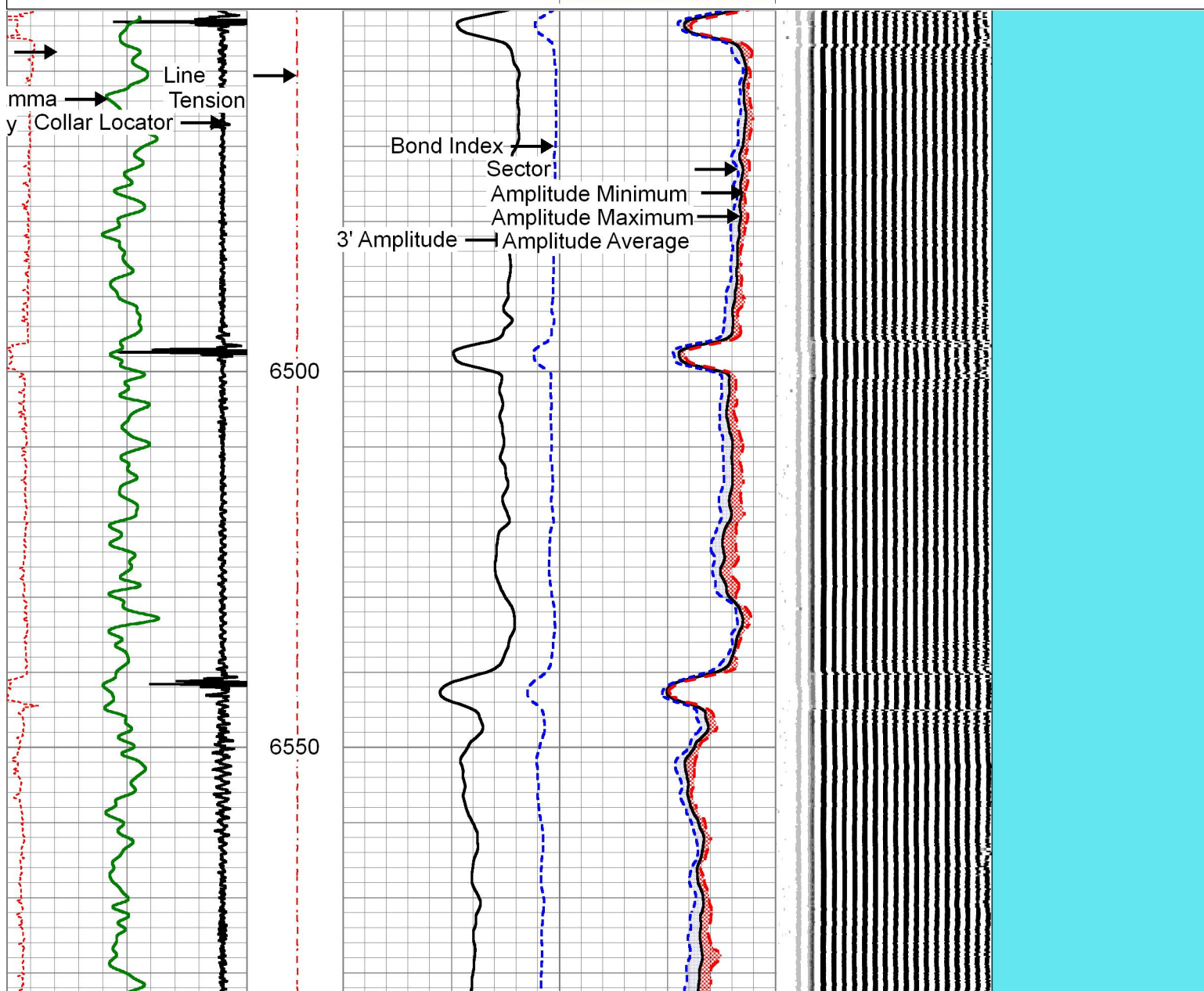
Serial Number

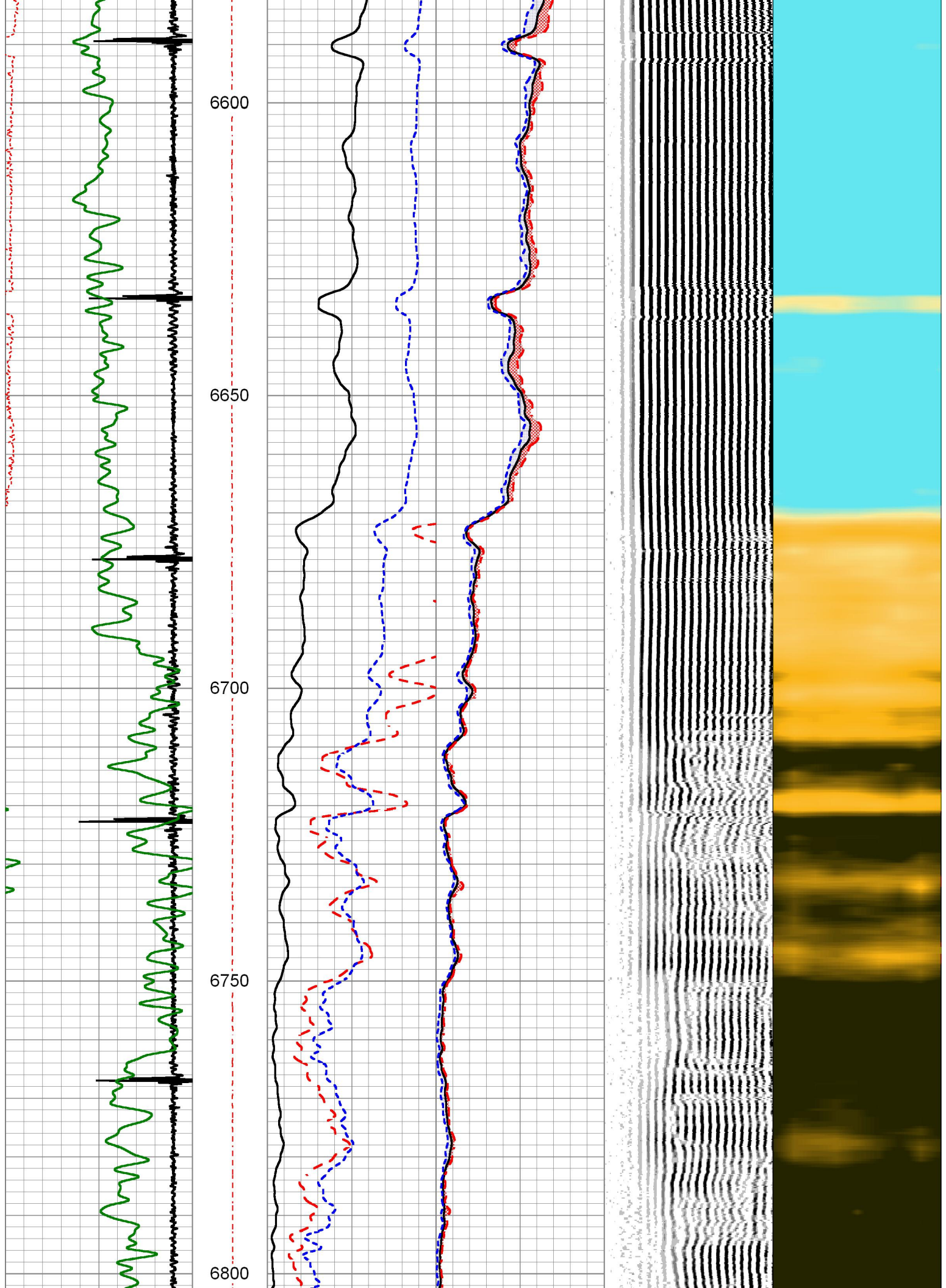
Engineer: BURNS
Operator: BRIGANTE
Operator: HORTON
Operator:

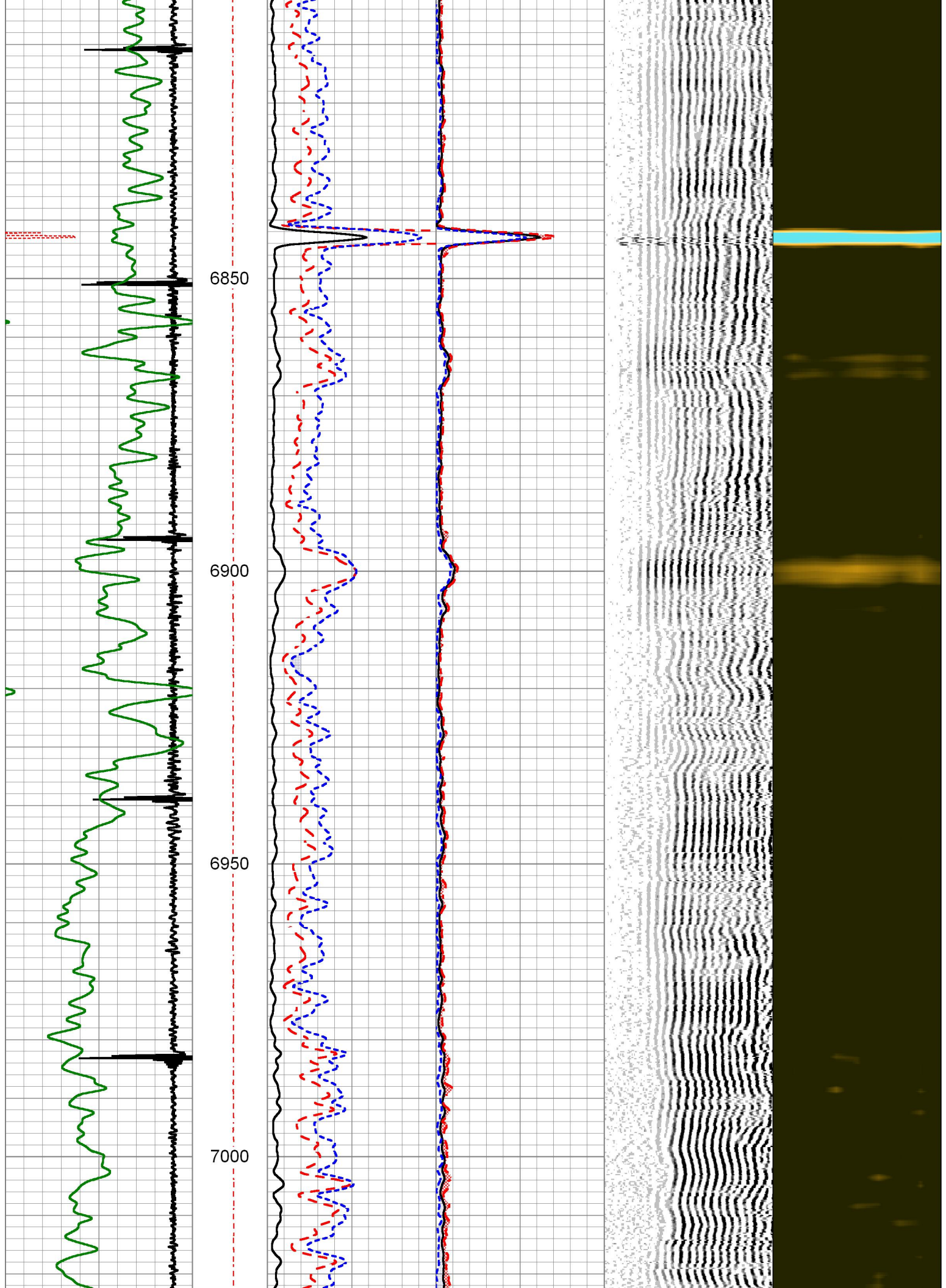
Sensor	Onset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	13.46		Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00
			Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00
WVFS8	11.23		SCBL-275 Probe w Temp New Mod (0702) Probe Radii Bond Tool with Temperature	9.17	2.75	95.00
WVFS7	11.23					
WVFS6	11.23					
WVFS5	11.23					
WVFS4	11.23					
WVFS3	11.23					
WVFS2	11.23					
WVFS1	11.23					
WVFCAL	11.23					
WVF3FT	11.23					
WVF5FT	10.23					
HEADVOLT	6.98					
CCL	3.91		Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00
GR	1.17		GR_CCL-275 Probe GR-CCL Corrosion (F4.54) Probe 2 3/4" Gamma Ray / CCL Corrosion Digital	1.08	102.75	60.00
Bullnose-Titan GO Pin Pressure Cap			0.27	1.38	1.00	
Dataset: thornburg#1-x.db: field/well/run2/pass10 Total length: 19.34 ft Total weight: 202.00 lb O.D.: 2.88 in						

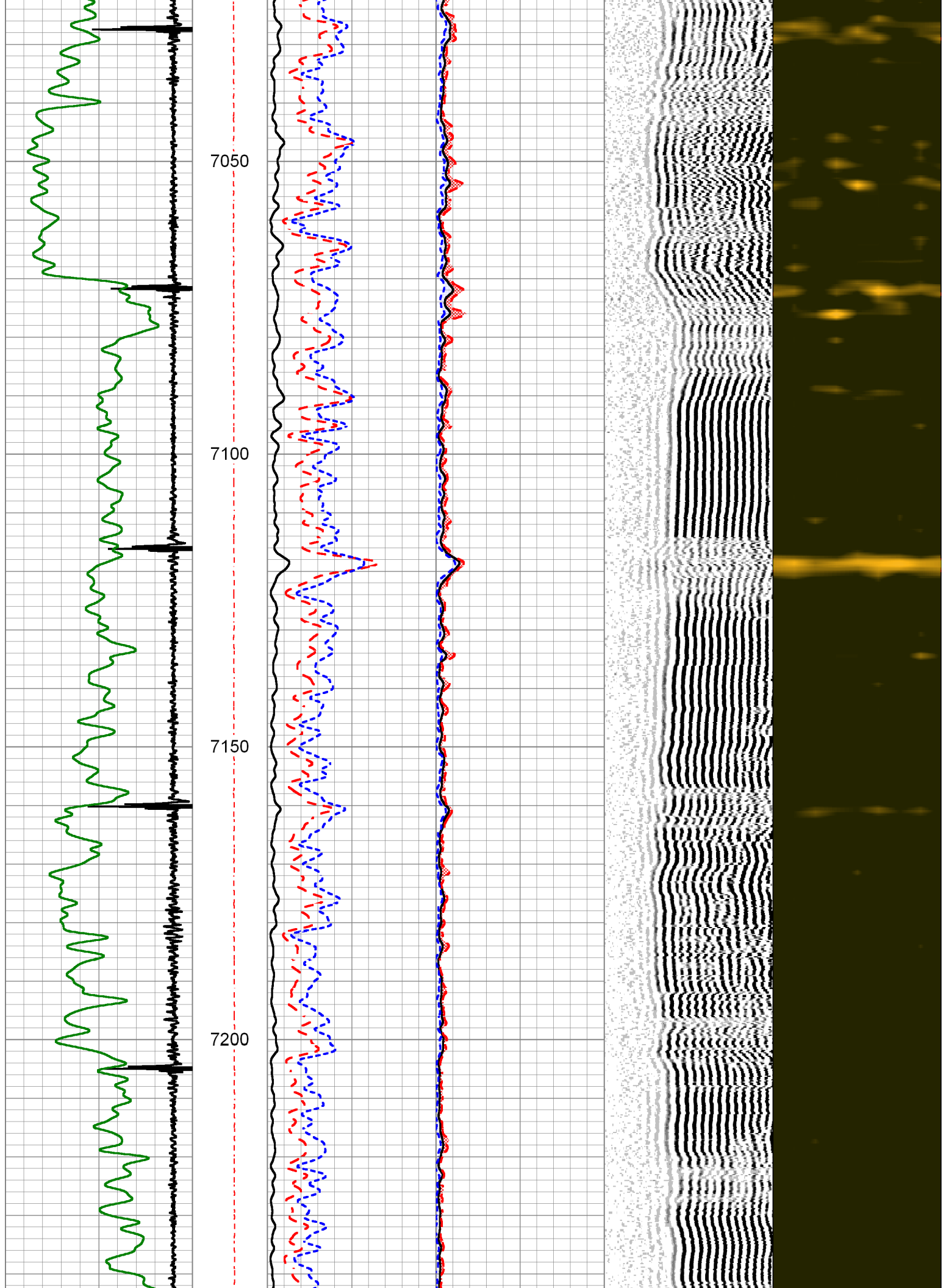
Database File thornburg#1-x.db
 Dataset Pathname run2/pass10.7
 Presentation Format pinr_scbl
 Dataset Creation Fri Apr 01 14:18:31 2016
 Charted by Depth in Feet scaled 1:240

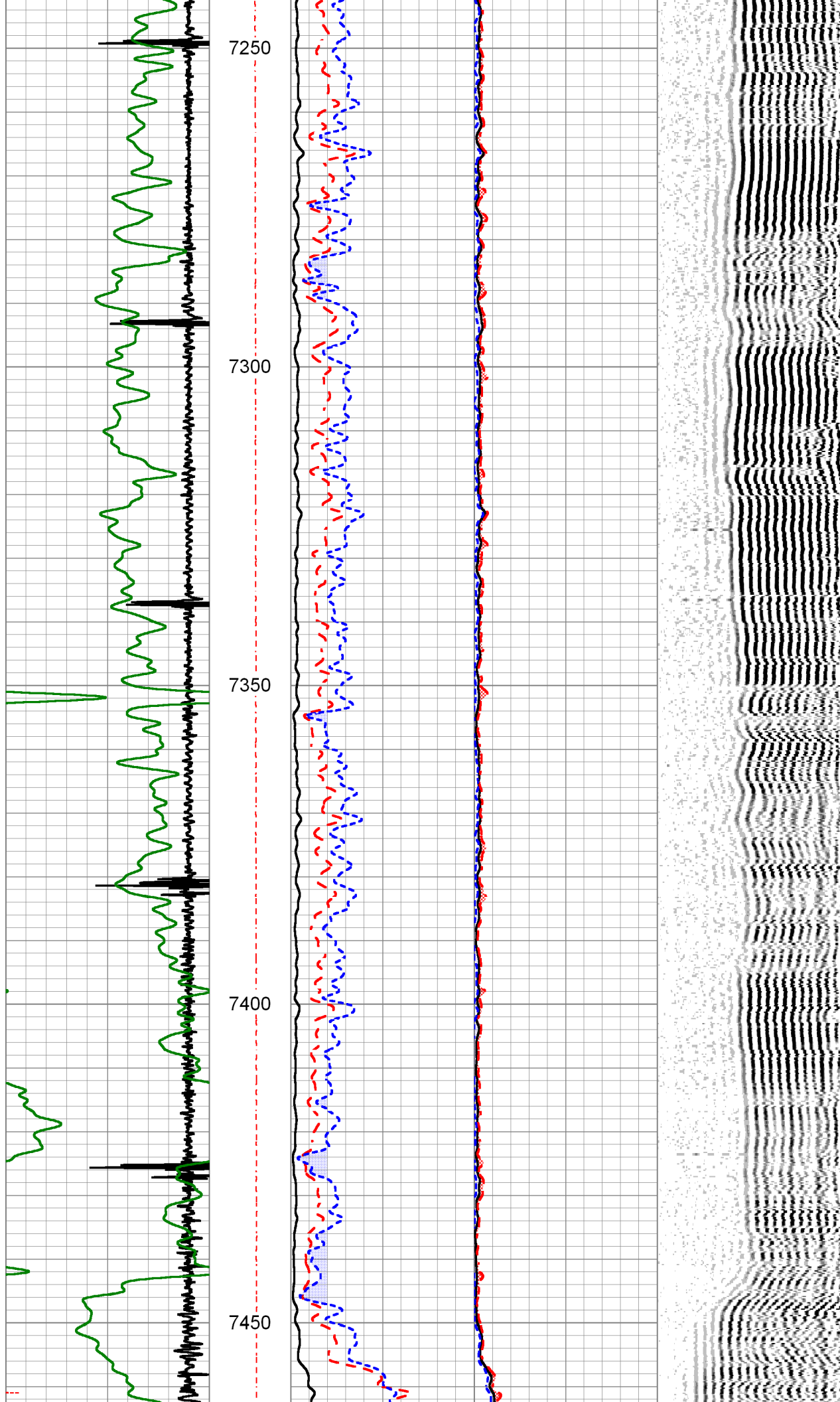
3' Travel Time			Line Tension	3' Amplitude		Sector Amplitude Average	200	VDL	1200	1	Sector Map	8
257	(usec)	157		0	(mV)							
-9 Collar Locator 1			0 (3000)	3' Amplified Amplitude X 5		0	150					
Gamma Ray				0	(mV)	20	Sector Amplitude Maximum					
0 (GAPI) 200			1	Bond Index		0	150					
						0	Sector Amplitude Minimum					
						0	150					
						0						

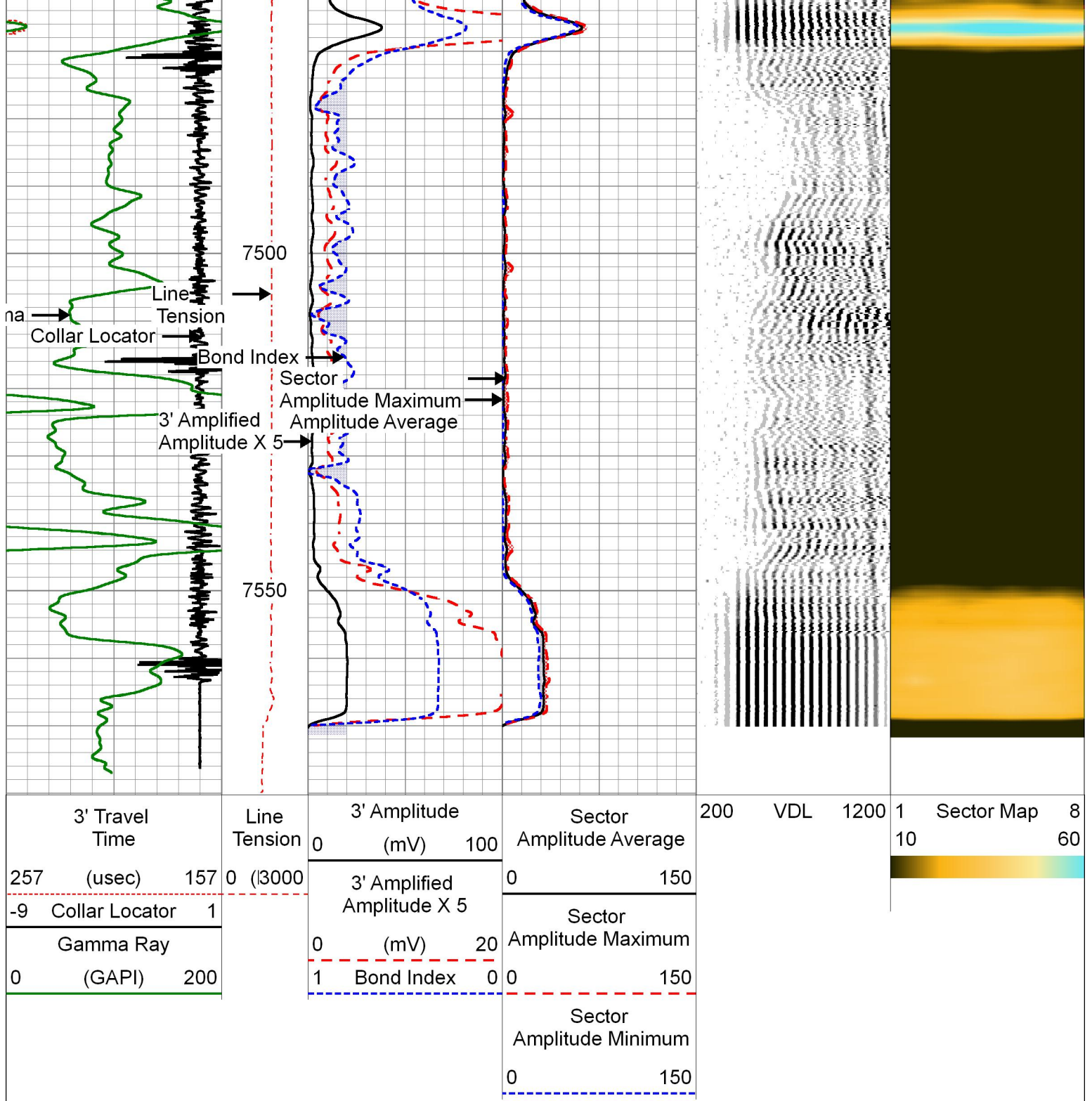















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REPEAT PASS

ZERO PSI ON WELL

Database File: thornburg#1-x.db

Dataset Pathname: run2/pass9.1

Presentation Format: pinr_scbl

Dataset Creation: Fri Apr 01 14:23:24 2016

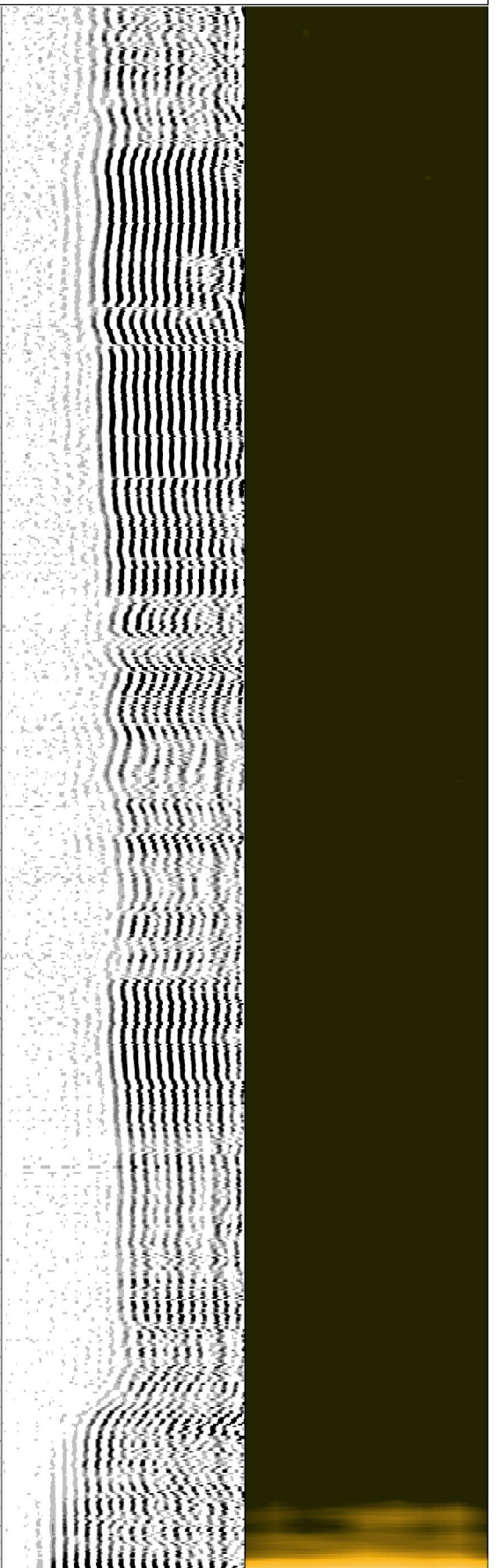
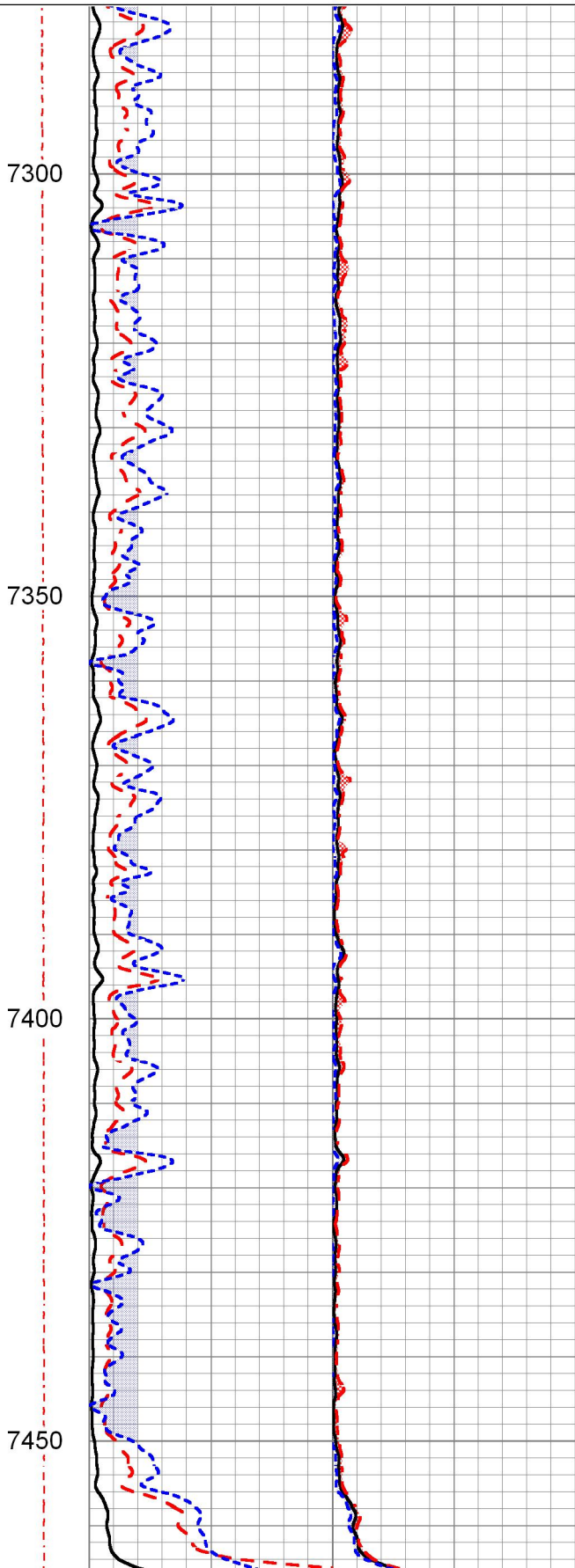
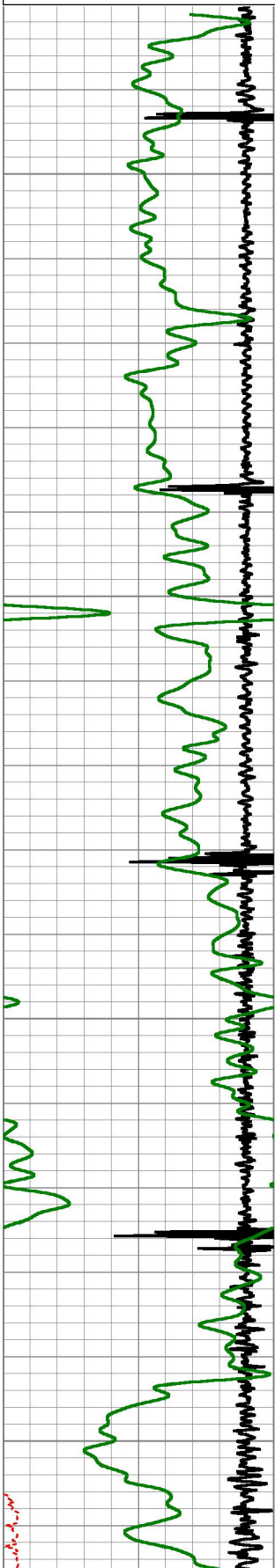
Charted by: Depth in Feet scaled 1:240

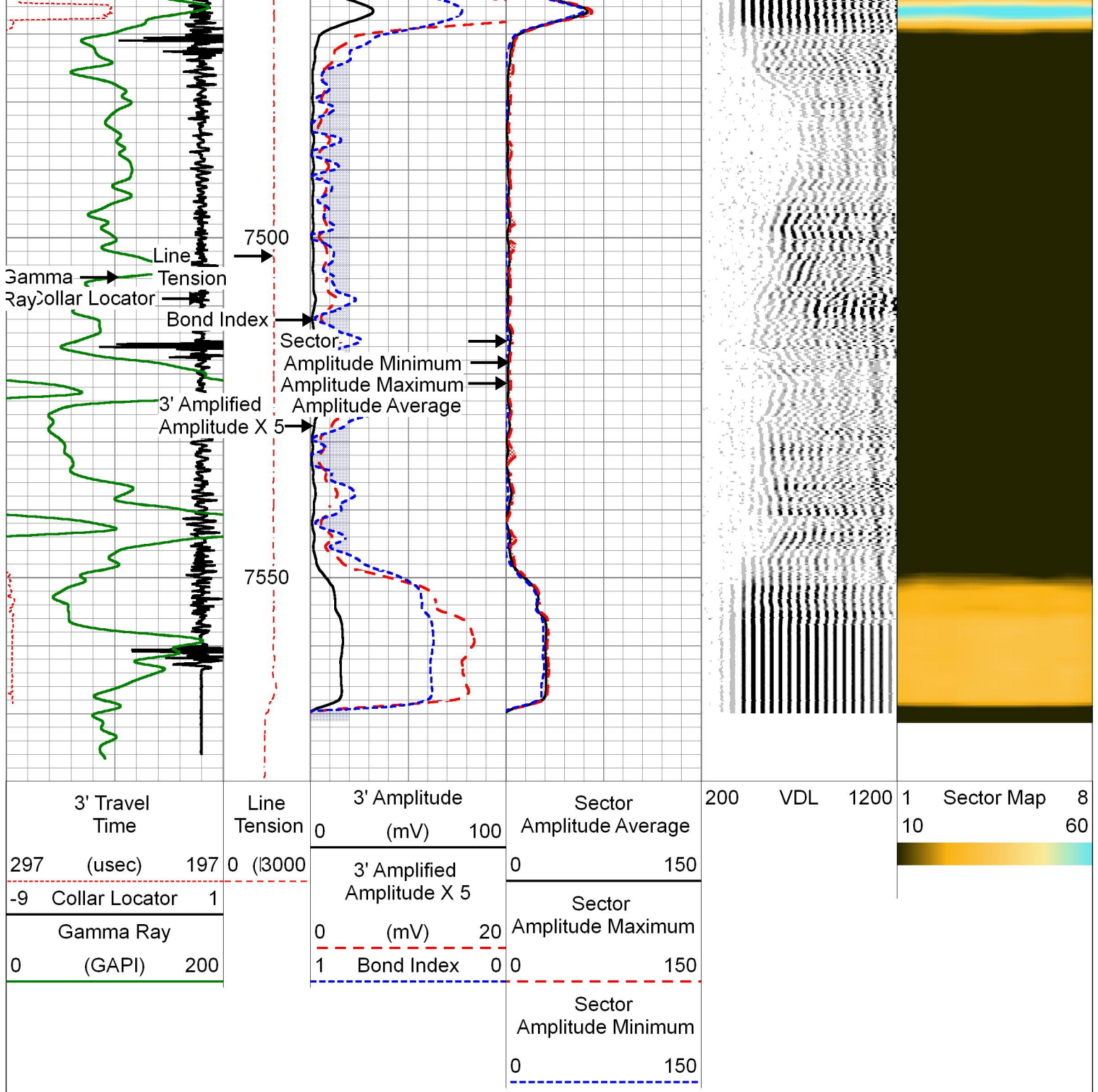
3' Travel Time	Line Tension	3' Amplitude (mV)	Sector Amplitude Average	200	VDL	1200	1	Sector Map	8
		0 100					10		60

297	(usec)	197
-9	Collar Locator	1
Gamma Ray		
0	(GAPI)	200

3' Amplified		
Amplitude X 5		
0	(mV)	20
1	Bond Index	0

0	150
Sector	
Amplitude Maximum	
0	150
Sector	
Amplitude Minimum	
0	150





Calibration Report

Database File thornburg#1-x.db
 Dataset Pathname run2/pass10
 Dataset Creation Fri Apr 01 13:51:41 2016

Gamma Ray Calibration Report

Serial Number: FW1408-106
 Tool Model: 275 Probe GR-CCL Corrosion
 Performed: Thu Oct 29 10:30:52 2015

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps

Calibrator Reading: 1.0 cps

Sensitivity:

0.8000

GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: 070230
 Tool Model: 275 Probe w Temp New Mod

Calibration Casing Diameter: 4.500 in
 Calibration Depth: 6609.983 ft

Master Calibration, performed Fri Apr 01 13:37:56 2016:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.018	0.824	1.000	81.196	99.525	-0.839
CAL	0.022	2.004				
5'	0.017	0.520	1.000	81.196	159.435	-1.764
SUM						
S1	0.036	0.848	0.000	100.000	123.179	-4.476
S2	0.013	0.877	0.000	100.000	115.804	-1.524
S3	0.015	0.901	0.000	100.000	112.802	-1.637
S4	0.015	0.892	0.000	100.000	113.996	-1.656
S5	0.014	0.867	0.000	100.000	117.223	-1.610
S6	0.015	0.834	0.000	100.000	122.079	-1.823
S7	0.016	0.818	0.000	100.000	124.815	-2.037
S8	0.023	0.825	0.000	100.000	124.665	-2.811

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.022	2.004	1.000	0.000

Air Zero Calibration, performed Fri Mar 25 20:36:08 2016:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
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	

Temperature Calibration Report

Serial Number: 070230
 Tool Model: 275 Probe w Temp New Mod
 Performed: Thu Oct 29 10:31:02 2015

Reference

Reading

Low Reference:	0.00	degF	0.00	degF
High Reference:	1.00	degF	1.00	degF

Gain:	1.00
Offset:	0.00
Delta Spacing	1



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Field	ZENITH	
County	ADAMS	
State	COLORADO	Country