# CEMENT BOND LOG

gyrodata

| | |
|---|---|
| Company | Extraction Oil and Gas, Inc. |
| Well | Interchange B N35-20-1N |
| Field | Wattenberg |
| County | Broomfield |
| State | Colorado |

**Company** Extraction Oil and Gas, Inc.
**Well** Interchange B N35-20-1N
**Field** Wattenberg
**County** Broomfield **State** Colorado

API # : 05 014 20845
Location: NE/SW
2474 FSL
1550 FWL

SEC: 10 TWP: 1S RGE: 68W

Other Services

Elevation
K.B. 5242
D.F. 5241
G.L. 5213

Permanent Datum: Ground Level Elevation: 5213
Log Measured From: Kelly Bushing , 29 ft. above Permanent Datum.
Drilling Measured From: Kelly Bushing

| | | | |
|---|---|---|---|
| Date | 28 June 2019 | | |
| Run Number | One | | |
| Plug Back T.D. Driller | ---- | | |
| Plug Back T.D. Logger | ---- | | |
| Bottom Logged Interval | 8560 | | |
| Top Log Interval | Surface | | |
| Type Fluid | Water | | |
| Density / Viscosity | ---- | | |
| Max. Recorded Temp. | 235 | | |
| Time Logger on Bottom | 12:30 | | |
| Equipment Number | GD170 | | |
| Location | Casper | | |
| Recorded By | GS Yarbro | | |
| Witnessed By | ---- | | |

| Casing Record | | | | Tubing Record | | | |
|---|---|---|---|---|---|---|---|
| Size | Weight | From | To | Size | Weight | From | To |
| 9 5/8 | 36 | 29 | ---- | | | | |
| 5 1/2 | 20 | 29 | ---- | | | | |
| | | | | | | | |

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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.

**Ticket # :** RM0619PCBW489
**Your Crew Today:** Kennicker, Baker
**Log Correlated to:** Surface

| Cement Data | |
|---|---|
| Date Cemented | ---- |
| Primary / Squeeze | Primary |
| Type / Weight | ---- |
| Main Pass Press. | Zero |
| Repeat Pass Press. | Zero |

Bond Index

| Index % | Est Top Depth |
|---|---|
| 20 % Bond | 200 |
| 40 % Bond | 200 |
| 60 % Bond | 550 |
| 80 % Bond | 550 |
| 100 % Bond | 1780 |

Comments

**Estimated Top of Cement**
**( 40 % Bond Index) at 200 feet**

Thank you for using Gyrodata

Eric Regnier: Rocky Mountain Wireline Manager EricR@Gyrodata.com

## Log Variables

Databased:\warrior\data\2019_06_28_extraction_interchange_b_n35_20_1n_cbl\2019_06_28_extra
Dataset field/well/run1/pass3.1/_vars_

Top - Bottom

| BHTEMP_Src | BOREID<br>in | BOTTEMP<br>degF | CASEOD<br>in | CASETHCK<br>in | CASEWGHT<br>lb/ft | MAXAMPL<br>mV | MaxAPIID<br>in |
|---|---|---|---|---|---|---|---|
| TEMP | 8.5 | 100 | 5.5 | 0.361 | 20 | 71.9 | 4.923 |

| MINAMPL<br>mV | MinAPIID<br>in | MINATTN<br>db/ft | PPT<br>usec | TDEPTH<br>ft |
|---|---|---|---|---|
| 2.1 | 4.751 | 0 | 235 | 0 |

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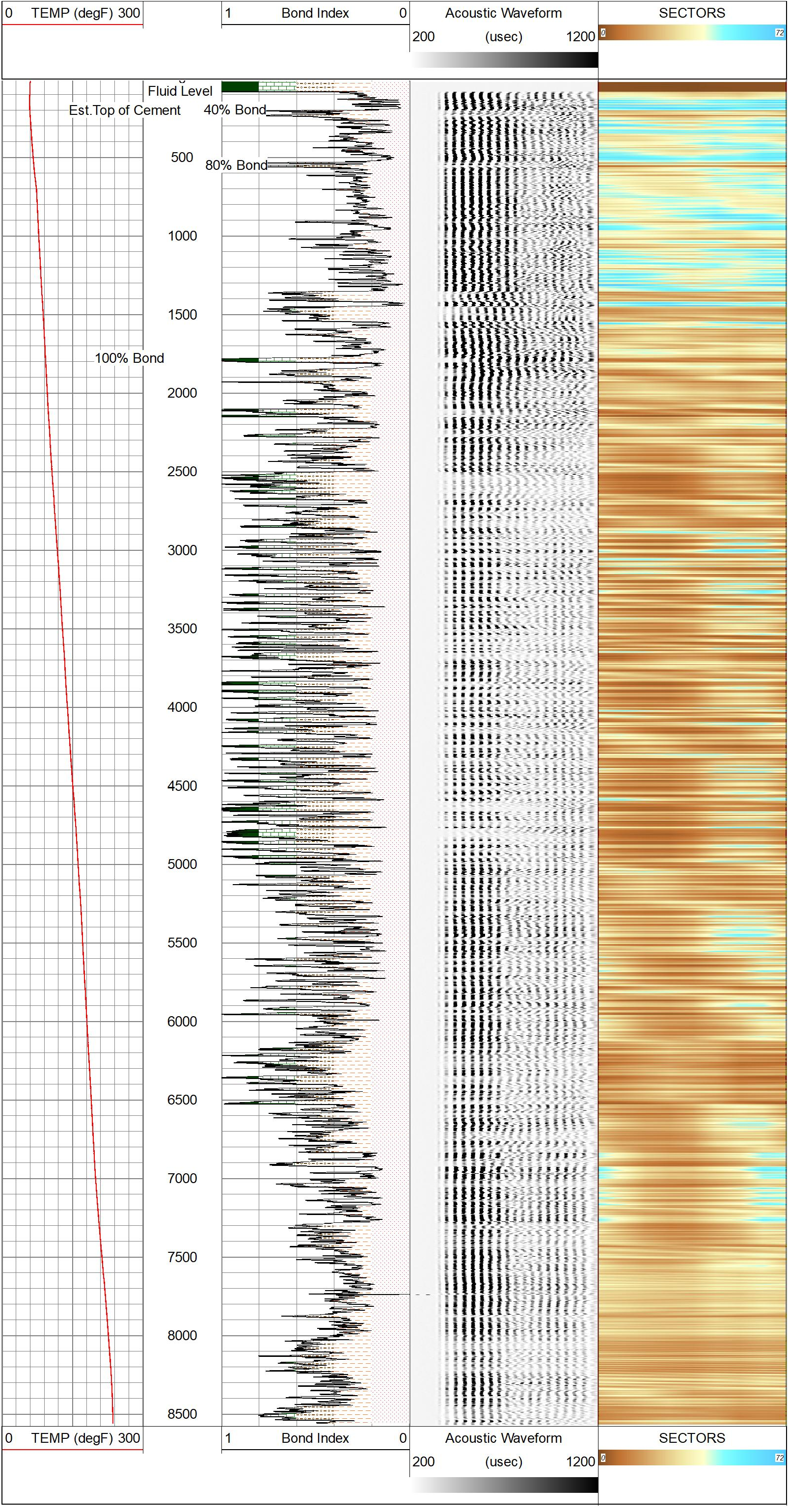
## BOND INDEX

**Calculated for 3000 PSI Compressive Strength Cement**

| | |
|---|---|
| Database File | 2019_06_28_extraction_interchange_b_n35_20_1n_cbl\2019_06_28_extraction_interchange_b_n35_20_1 |
| Dataset Pathname | ./././bndindx |
| Presentation Format | BNDIND~1 |
| Dataset Creation | Fri Jun 28 13:54:43 2019 |
| Charted by | Depth in Feet scaled 1:7500 |



**gyrodata**

# MAIN PASS - Ran with 0 PSI

5 in / 100 ft

| | |
|---|---|
| Database File | 2019_06_28_extraction_interchange_b_n35_20_1n_cbl\2019_06_28_extraction_interchange_b_n35_20_1 |
| Dataset Pathname | pass3.1 |
| Presentation Format | rcbl_8s |
| Dataset Creation | Fri Jun 28 13:51:32 2019 |
| Charted by | Depth in Feet scaled 1:240 |

CCL
Gamma
0 (GAPI) 200
300(Line Tens (lb) 0
Predicted TT
TT
+[10 usec]-

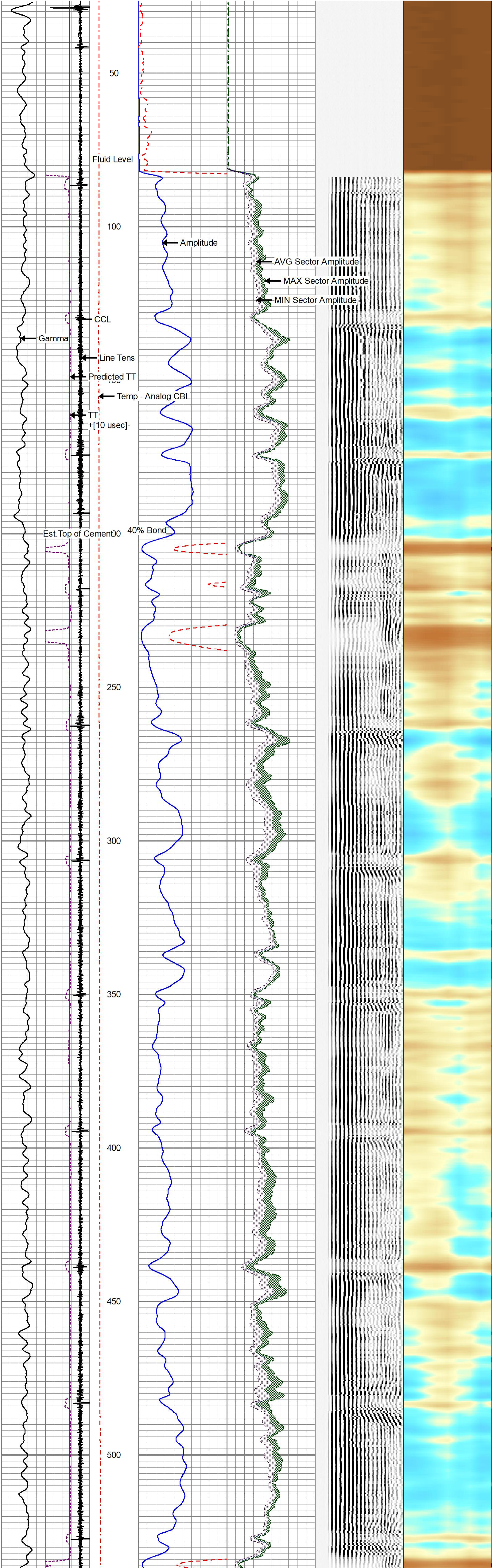
np - Analog C
(degF)
0 300

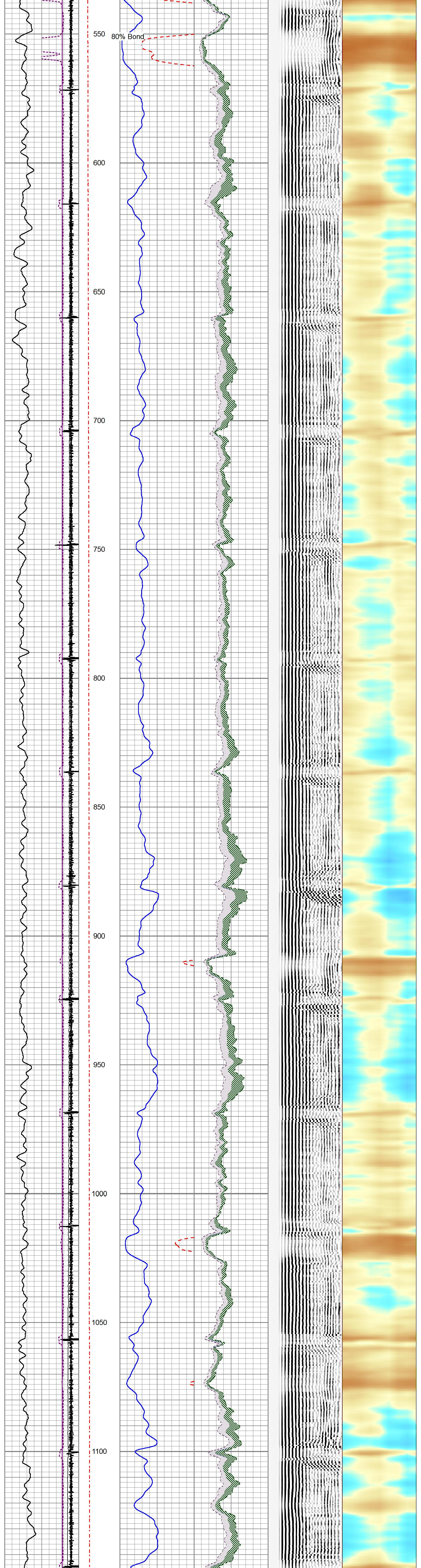
0 Amplitude (mV)100
Amplitude x10
0 (mV) 10

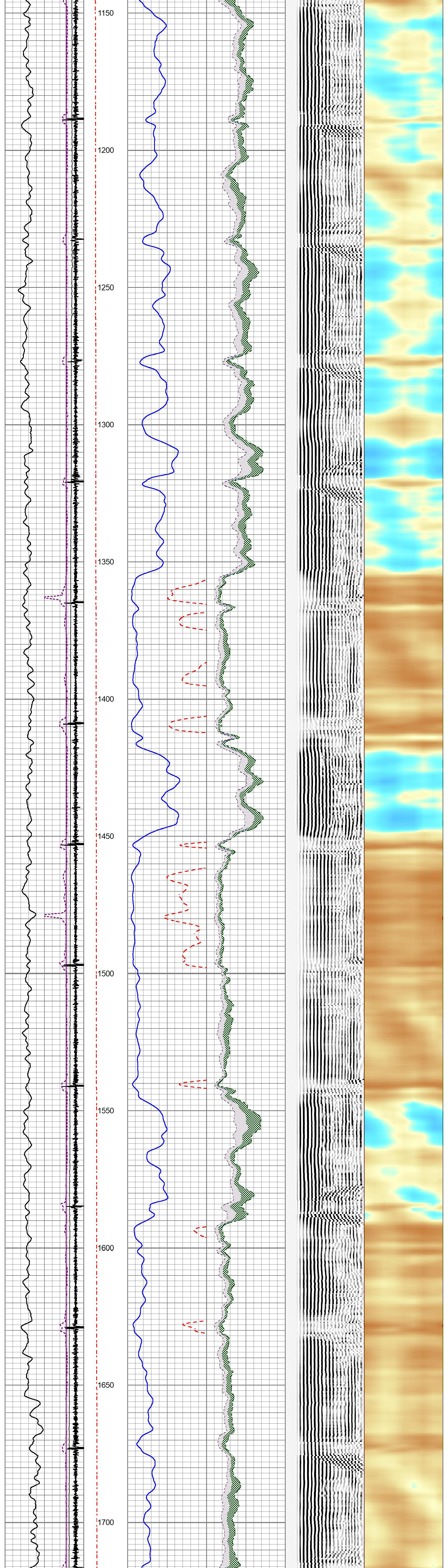
AVG Sector Amplitude
0 100
MAX Sector Amplitude
0 100
MIN Sector Amplitude
0 100

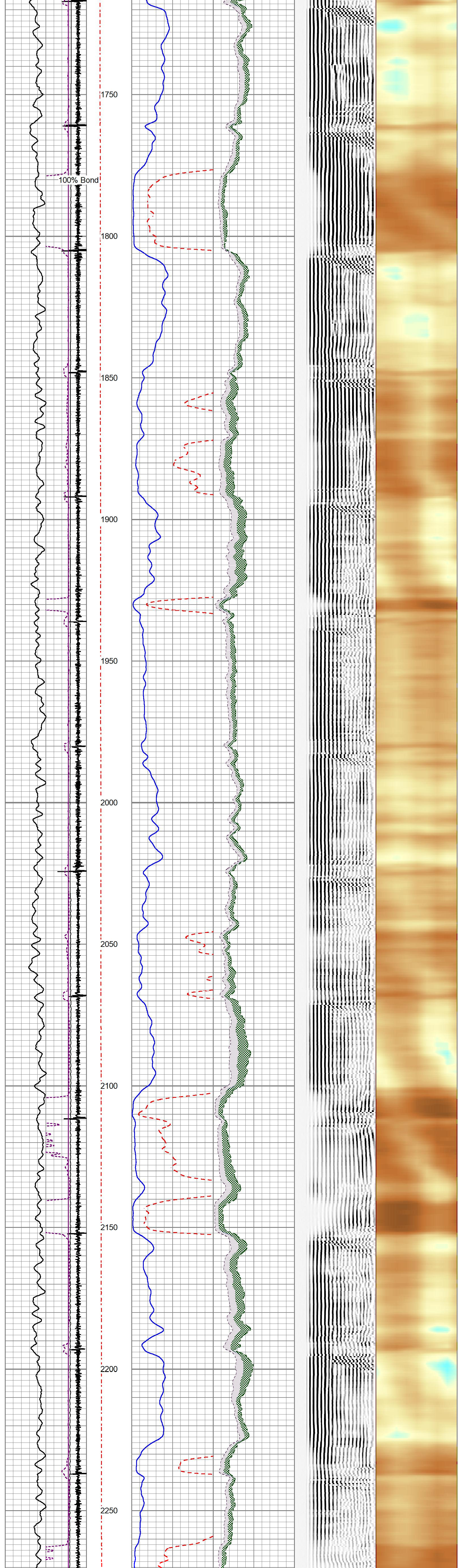
Acoustic Waveform
200 (usec) 1200

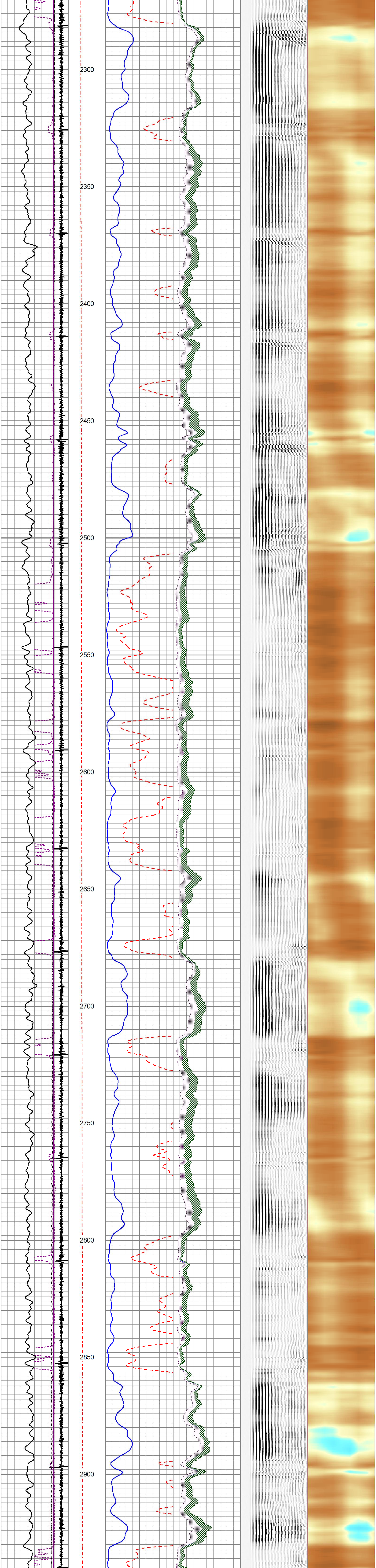
SECTORS
0 72

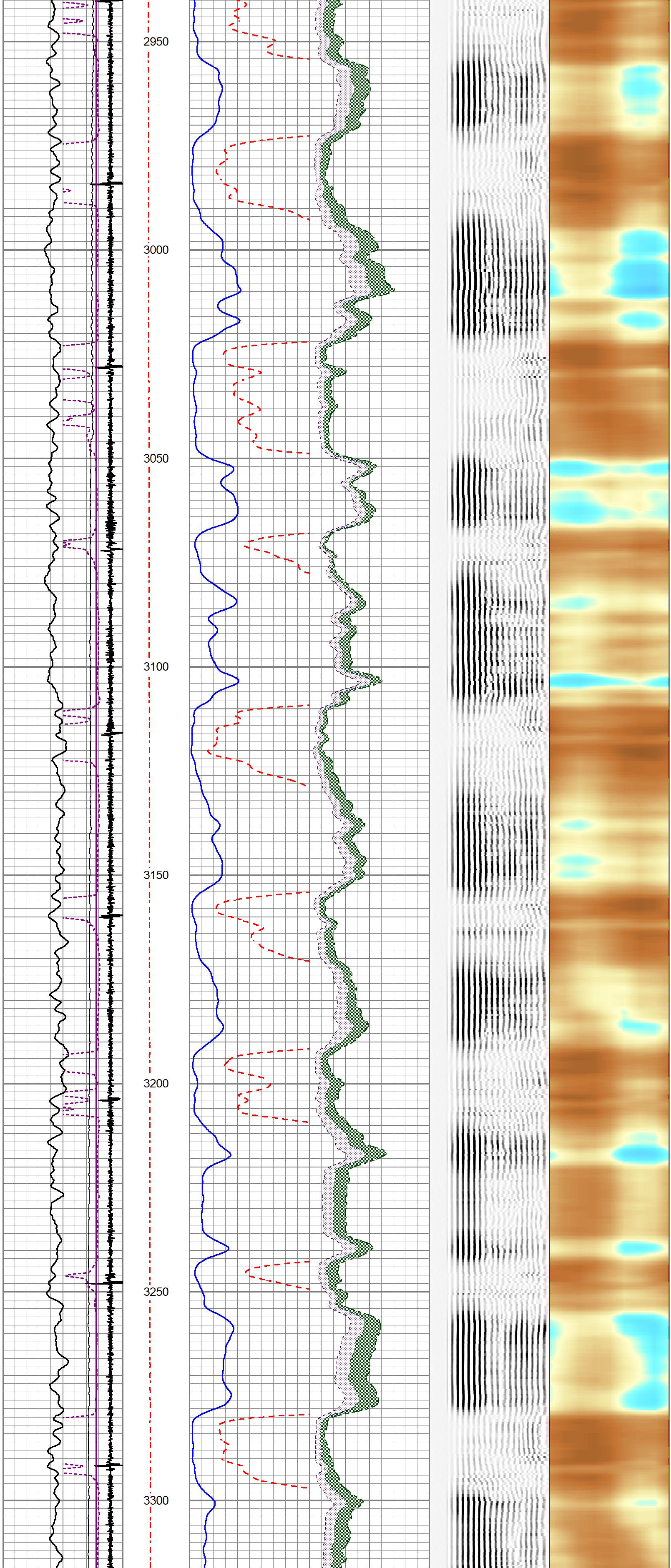


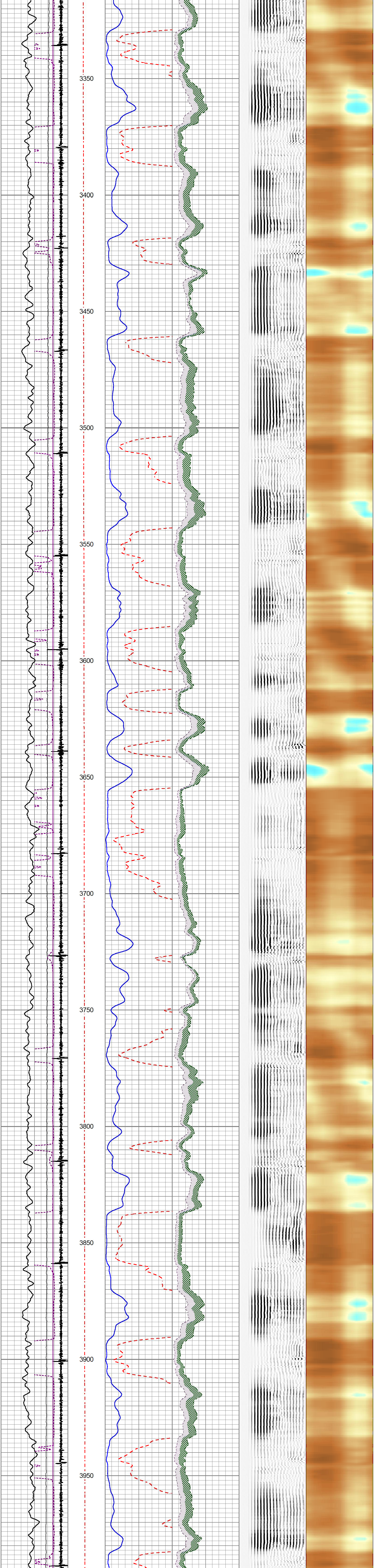








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3500
3550
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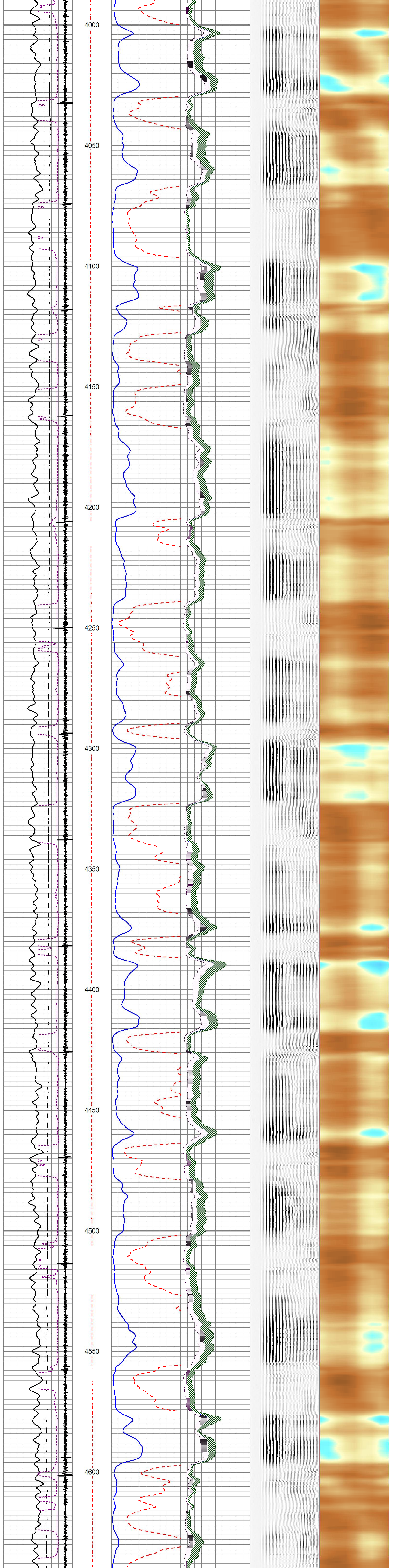
3800
3850
3900
3950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4100
4150
4200
4250
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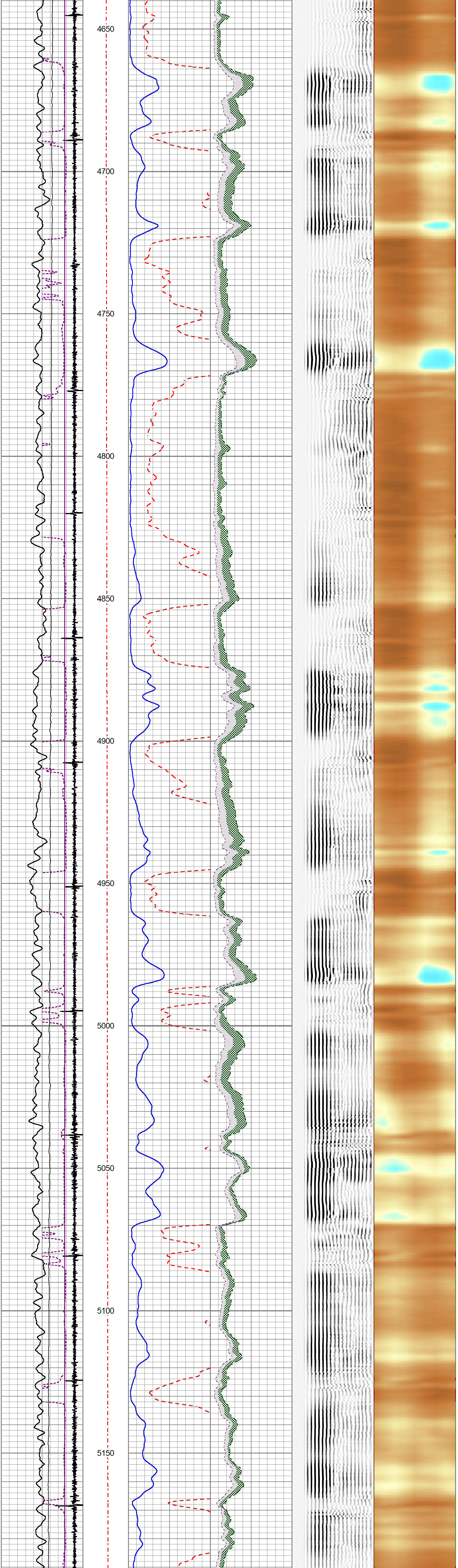
4350
4400
4450
4500
4550
4600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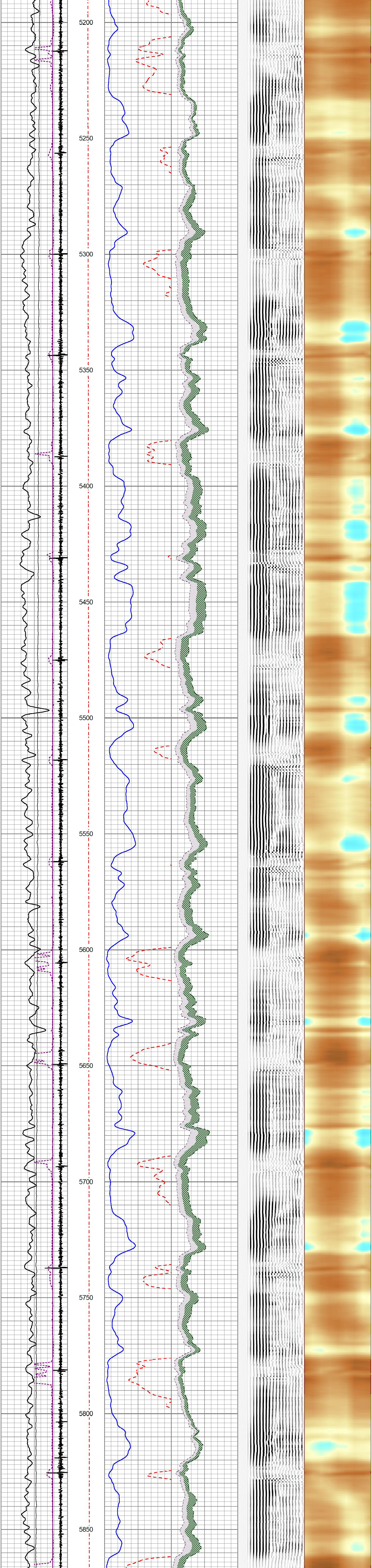
5000
5050
5100
5150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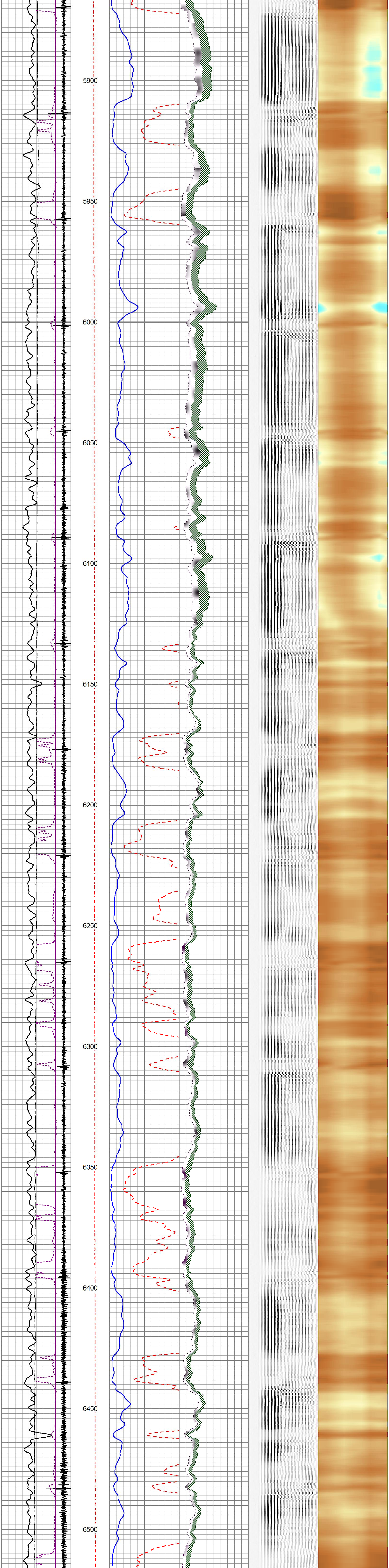
5800
5850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5950
6000
6050
6100
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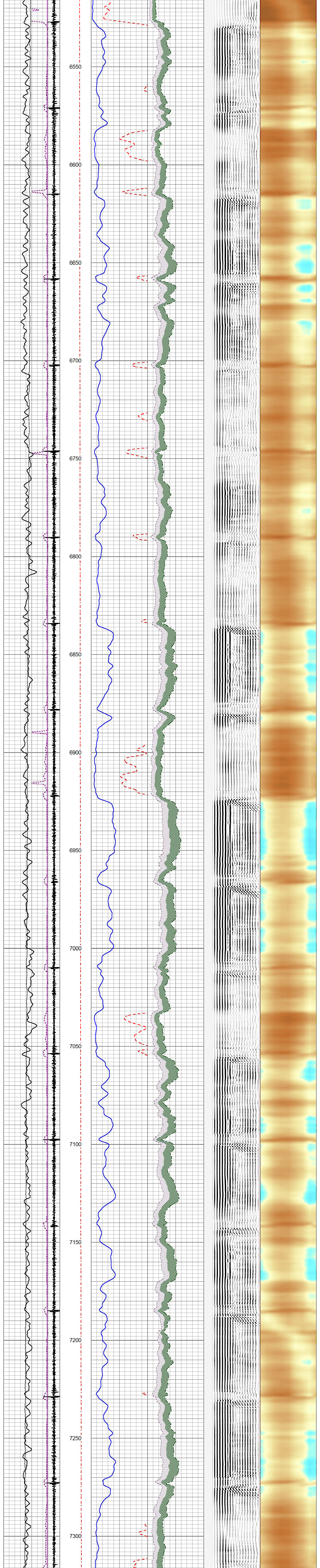
6200
6250
6300
6350
6400
6450
6500


6550
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6750
6800
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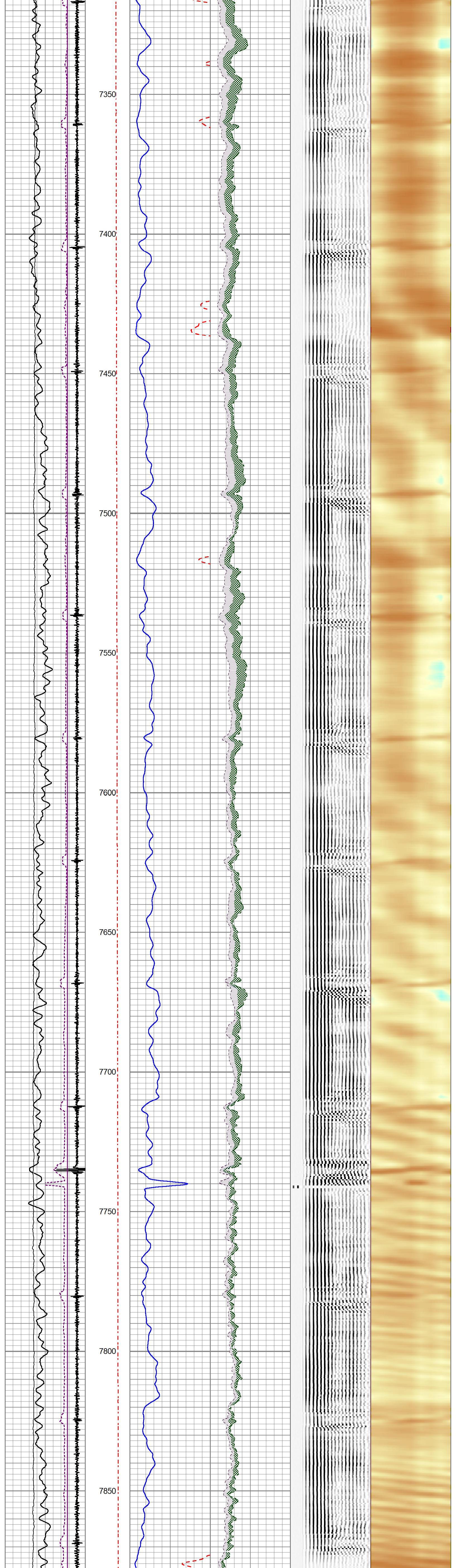
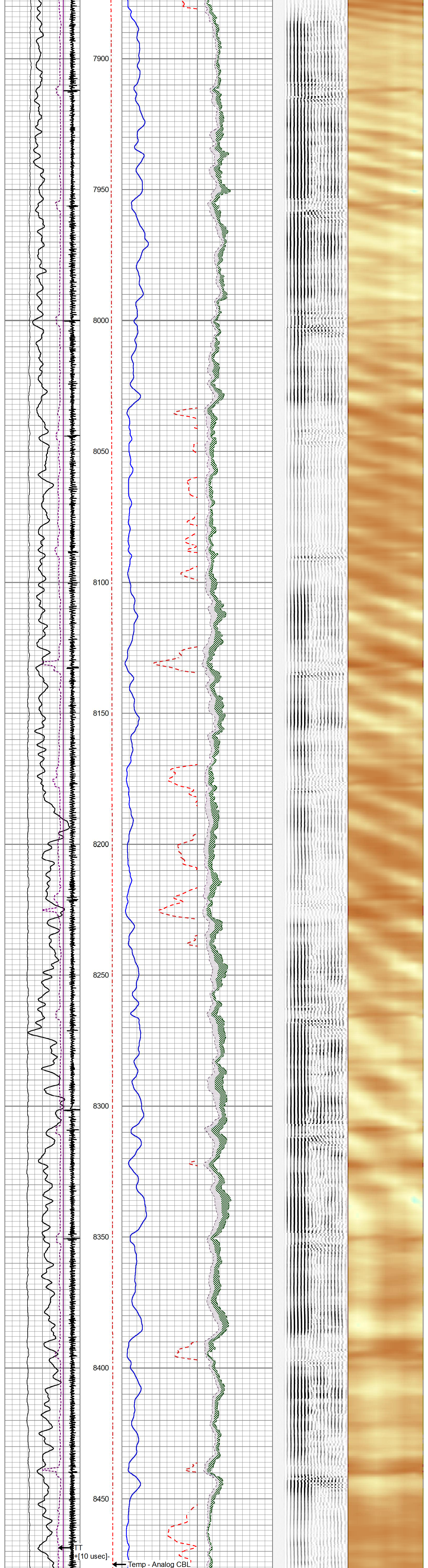
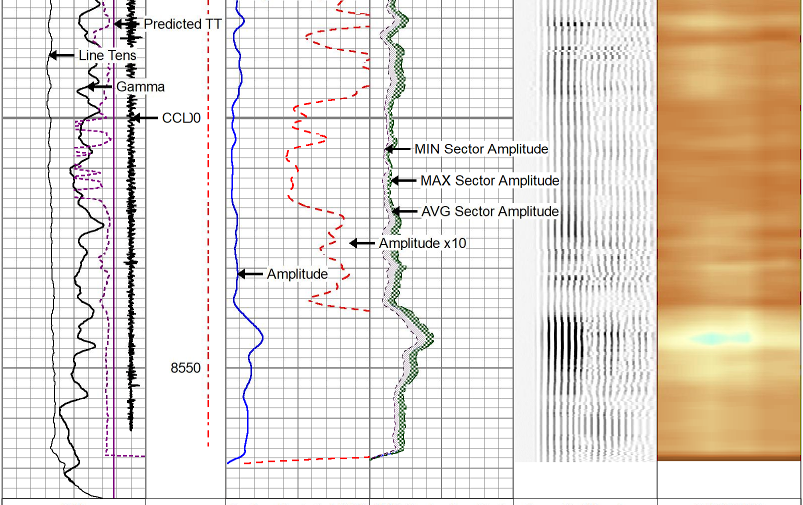
6900
6950
7000
7050
7100
7150
7200
7250
7300







CCL
Gamma
0 (GAPI) 200
300(Line Tens (lb) 0
Predicted TT
TT
+[10 usec]-

np - Analog C
(degF)
0 300

0 Amplitude (mV)100
Amplitude x10
0 (mV) 10

AVG Sector Amplitude
0 100
MAX Sector Amplitude
0 100
MIN Sector Amplitude
0 100

Acoustic Waveform
200 (usec) 1200

SECTORS
0 72

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## REPEAT PASS - Ran with 0 PSI

**5 in / 100 ft**

Database File 2019_06_28_extraction_interchange_b_n35_20_1n_cbl\2019_06_28_extraction_interchange_b_n35_20_1
Dataset Pathname pass2.1
Presentation Format rcbl_8s
Dataset Creation Fri Jun 28 13:52:50 2019
Charted by Depth in Feet scaled 1:240

CCL
Gamma
0 (GAPI) 200
300(Line Tens (lb) 0
Predicted TT
TT
+[10 usec]-

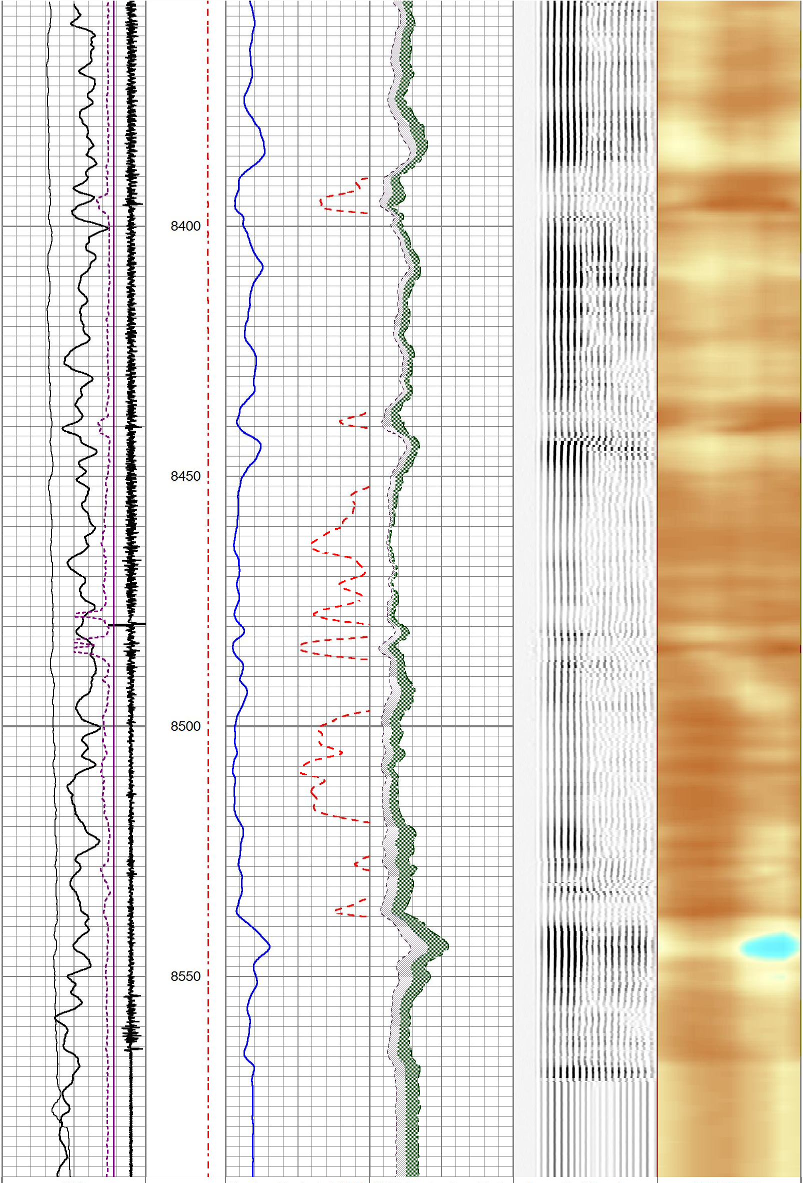
np - Analog C
(degF)
0 300

0 Amplitude (mV)100
Amplitude x10
0 (mV) 10

AVG Sector Amplitude
0 100
MAX Sector Amplitude
0 100
MIN Sector Amplitude
0 100

Acoustic Waveform
200 (usec) 1200

SECTORS
0 72



CCL
Gamma
0 (GAPI) 200
300(Line Tens (lb) 0
Predicted TT
TT
+[10 usec]-

np - Analog C
(degF)
0 300

0 Amplitude (mV)100
Amplitude x10
0 (mV) 10

AVG Sector Amplitude
0 100
MAX Sector Amplitude
0 100
MIN Sector Amplitude
0 100

Acoustic Waveform
200 (usec) 1200

SECTORS
0 72

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### Calibration Report

Database File d:\warrior\data\2019_06_28_extraction_interchange_b_n35_20_1n_cbl\2019_06_28_extraction_interchange_
Dataset Pathname pass3.1
Dataset Creation Fri Jun 28 13:51:32 2019

### Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | ISHV2-03 | |
| Tool Model: | 2 3/4" TekCo | |
| Performed: | Thu Apr 25 10:34:21 2019 | |
| Calibrator Value: | 194.0 | GAPI |
| Background Reading: | 61.7 | cps |
| Calibrator Reading: | 373.2 | cps |
| Sensitivity: | 0.6226 | GAPI/cps |

# Segmented Cement Bond Log Calibration Report

| | | |
|---|---|---|
| Serial Number: | IRB34-03 | |
| Tool Model: | 2 3/4" RIB Analog | |
| Calibration Casing Diameter: | 5.500 | in |
| Calibration Depth: | 122.740 | ft |

Master Calibration, performed (Derived):

| | Raw (v) | | Calibrated (mv) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | -0.005 | 0.602 | 0.000 | 71.921 | 118.394 | 0.598 |
| CAL | -0.004 | 0.746 | | | | |
| 5' | 0.001 | 0.736 | 0.000 | 71.921 | 97.816 | -0.056 |
| SUM | | | | | | |
| S1 | 0.006 | 0.676 | 0.000 | 72.000 | 107.523 | -0.674 |
| S2 | 0.007 | 0.744 | 0.000 | 72.000 | 97.725 | -0.716 |
| S3 | 0.009 | 0.799 | 0.000 | 72.000 | 91.120 | -0.825 |
| S4 | 0.011 | 0.854 | 0.000 | 72.000 | 85.348 | -0.926 |
| S5 | 0.011 | 0.880 | 0.000 | 72.000 | 82.847 | -0.871 |
| S6 | 0.009 | 0.751 | 0.000 | 72.000 | 97.028 | -0.832 |
| S7 | 0.008 | 0.745 | 0.000 | 72.000 | 97.707 | -0.765 |
| S8 | 0.007 | 0.658 | 0.000 | 72.000 | 110.655 | -0.758 |

Internal Reference Calibration, performed (Not Performed):

| | Raw (v) | | Calibrated (v) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | -0.004 | 0.746 | 1.000 | 0.000 |

Air Zero Calibration, performed (Not Performed):

| | 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

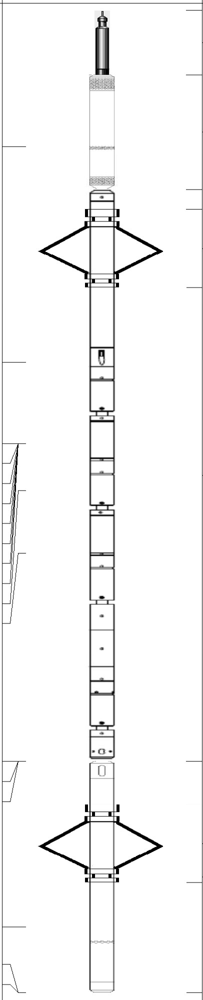
| | |
|---|---|
| Serial Number: | IRB34-03 |
| Tool Model: | 2 3/4" RIB Analog |
| Performed: | Wed Jan 30 14:38:18 2019 |

| | Reference | | Reading | |
|---|---|---|---|---|
| Low Reference: | 0.00 | degF | 0.00 | usec |
| High Reference: | 1.00 | degF | 1.00 | usec |

| | |
|---|---|
| Gain: | 0.33 |
| Offset: | 0.00 |
| Delta Spacing | 1 |

| Sensor | Offset (ft) |
|---|---|
| CCL | 13.50 |
| TEMP | 10.05 |
| WVFS8 | 8.76 |
| WVFS7 | 8.76 |
| WVFS6 | 8.76 |
| WVFS5 | 8.76 |
| WVFS4 | 8.76 |
| WVFS3 | 8.76 |
| WVFS2 | 8.76 |
| WVFS1 | 8.76 |
| WVF3FT | 8.01 |
| WVF5FT | 7.01 |
| WVFSYNC | 3.68 |
| WVFTEMP | 3.68 |
| WVFCAL | 3.68 |
| GR | 1.04 |
| LOCTIM | 0.00 |
| UTCTIM | 0.00 |

Schematic



| Description | Length (ft) | O.D. (in) | Weight (lb |
|---|---|---|---|
| CableHead-TitanConeType2 | 1.03 | 1.44 | 3.60 |
| CCL_Log-2 3/4" TekCo (IPSN7-002) | 1.83 | 2.75 | 33.00 |
| Antelope-Overbody | 1.25 | 2.75 | |
| RBTA-2 3/4" RIB Analog (IRB34-03) | 9.13 | 2.75 | 102.00 |
| Antelope-Overbody | 1.25 | 2.75 | |
| GR_Log-2 3/4" TekCo (ISHV2-03) | 3.68 | 2.75 | 47.00 |

| | |
|---|---|
| Dataset: | 2019_06_28_extraction_interchange_b_n35_20_1n_cbl.db: field/well/run1/pass3.1 |
| Total length: | 15.67 ft |
| Total weight: | 185.60 lb |
| O.D.: | 2.75 in |

gyrodata

| | | | |
|---|---|---|---|
| **Company** | Extraction Oil and Gas, Inc. | | |
| **Well** | Interchange B N35-20-1N | | |
| **Field** | Wattenberg | | |
| **County** | Broomfield | | |
| **State** | Colorado | **Country** | U.S.A. |