gyrodata

# CEMENT BOND LOG

**Company** Extraction Oil and as Inc.
**Well** Northwest A 520-25-12N
**Field** Wattenberg
**County** Broomfield **State** Colorado

API # : 05 014 20786
Location: NW/NW
1281 FNL
849 FWL

Other Services

SEC: 9 TWP: 1S RGE: 68W

Elevation
K.B. 5343
D.F. ----
G.L. 5314

| | |
|---|---|
| Company | Extraction Oil and as Inc. |
| Well | Northwest A 520-25-12N |
| Field | Wattenberg |
| County | Broomfield |
| State | Colorado |

Permanent Datum: Ground Level Elevation: 5314
Log Measured From: Kelly Bushing , 29 ft. above Permanent Datum.
Drilling Measured From: Kelly Bushing

| | | | |
|---|---|---|---|
| Date | 16 January 2020 | | |
| Run Number | One | | |
| Plug Back T.D. Driller | ---- | | |
| Plug Back T.D. Logger | ---- | | |
| Bottom Logged Interval | 9140 | | |
| Top Log Interval | Surface | | |
| Type Fluid | Water | | |
| Density / Viscosity | ---- | | |
| Max. Recorded Temp. | 231 | | |
| Time Logger on Bottom | 15:00 | | |
| Equipment Number | GD170 | | |
| Location | Casper | | |
| Recorded By | GS Yarbro | | |
| Witnessed By | Manuel Parras | | |

| 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 # : RM0120PCBW113
Your Crew Today: Baker, Enloe, Obgard
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 | 3690 |
| 40 % Bond | 4215 |
| 60 % Bond | 8990 |
| 80 % Bond | ---- |
| 100 % Bond | ---- |

**Comments**

Estimated Top of Cement
( 20 % Bond Index) at 3690 feet

Thank you for using Gyrodata

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

## Log Variables

Databased:\warrior\data\20200116_extraction northwest a s20-25-12n_cbl\20200116_extraction no
Dataset field/well/run1/pass3/_vars_

**Top - Bottom**

| BHTEMP_Src | CASEOD<br>in | CASETHCK<br>in | CASEWGHT<br>lb/ft | MAXAMPL<br>mV | MaxAPIID<br>in | MINAMPL<br>mV | MinAPIID<br>in |
|---|---|---|---|---|---|---|---|
| TEMP | 5.5 | 0.361 | 20 | 71.9 | 4.923 | 2.1 | 4.751 |

| MINATTN<br>db/ft | PPT<br>usec | Z_NA_1 | Z_NA_2 | Z_NA_3 |
|---|---|---|---|---|
| 0 | 237 | 0 | 0 | 0 |

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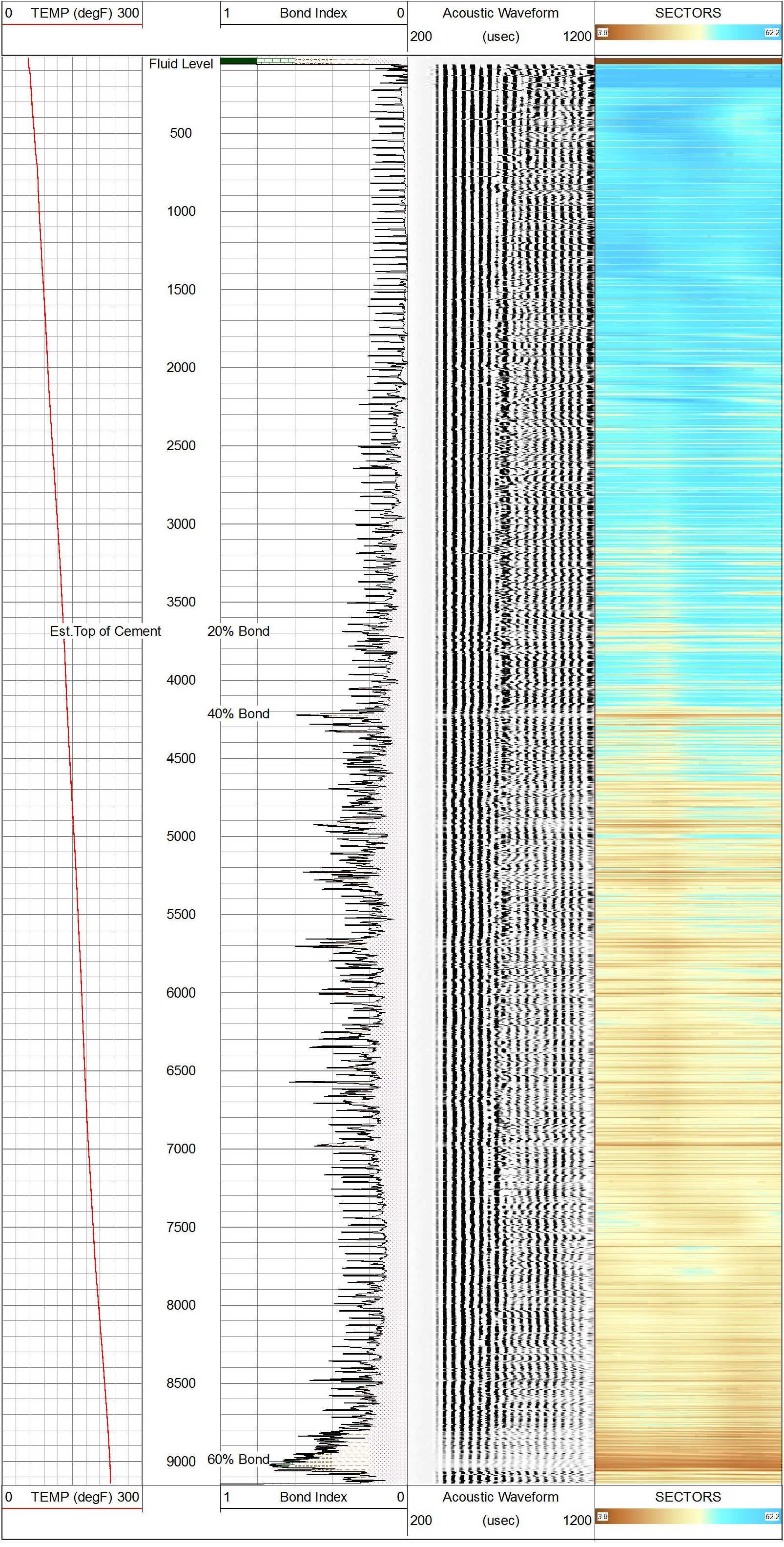
# BOND INDEX

## Calculated for 3000 PSI Compressive Strength Cement

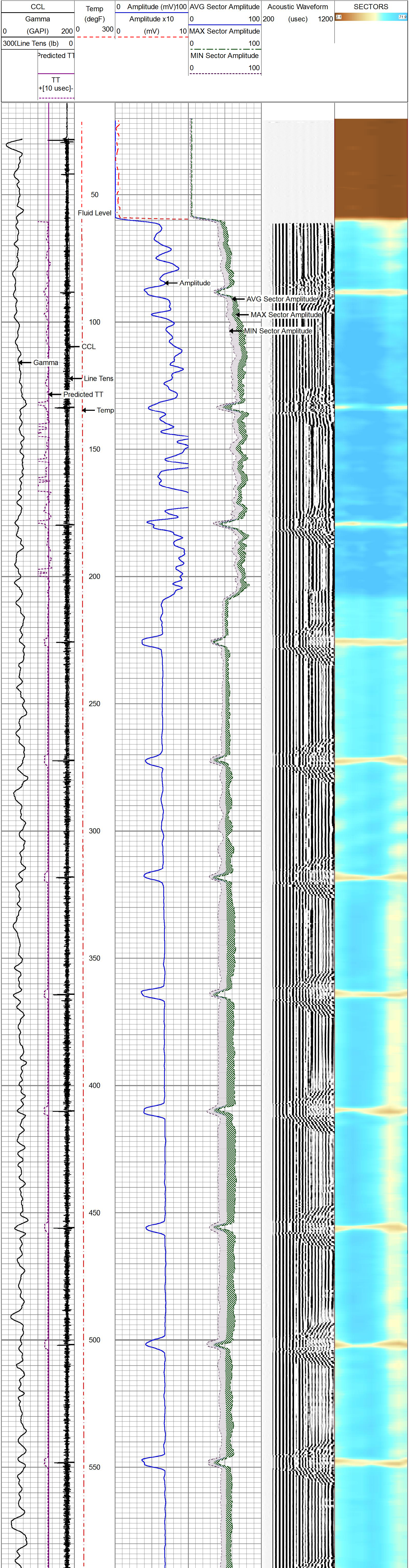
Database File 20200116_extraction northwest a s20-25-12n_cbl\20200116_extraction northwest a s20-25-12n_cbl.db
Dataset Pathname ./././bndindx
Presentation Format BNDIND~1
Dataset Creation Thu Jan 16 17:57:49 2020
Charted by Depth in Feet scaled 1:7500

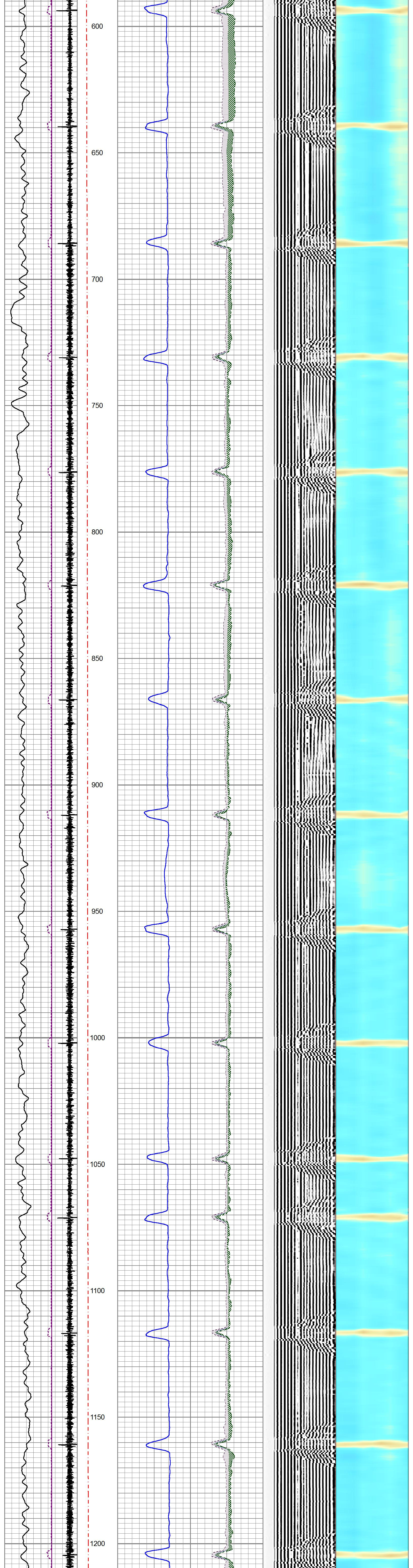


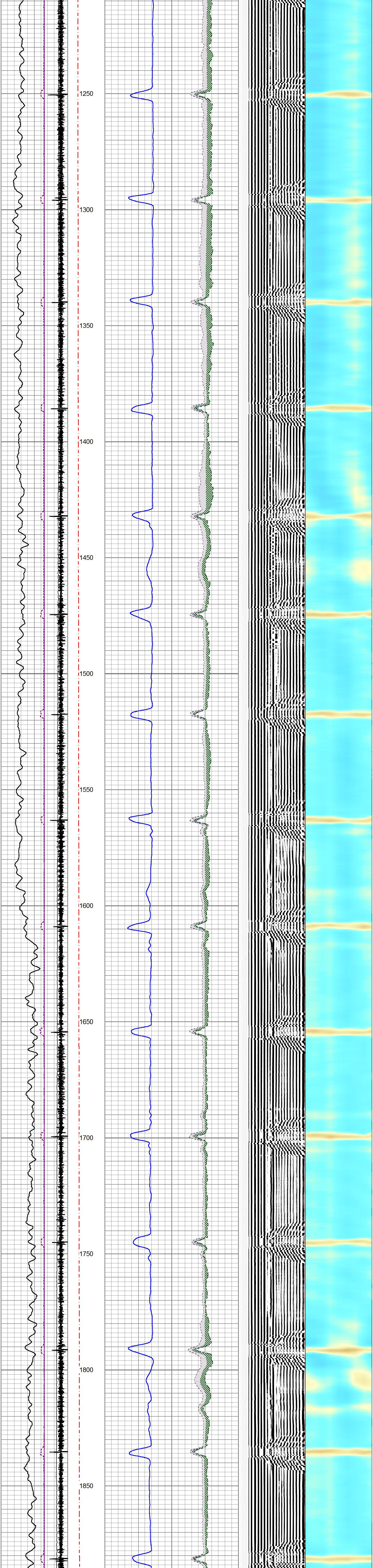
# MAIN PASS - Ran with Zero PSI

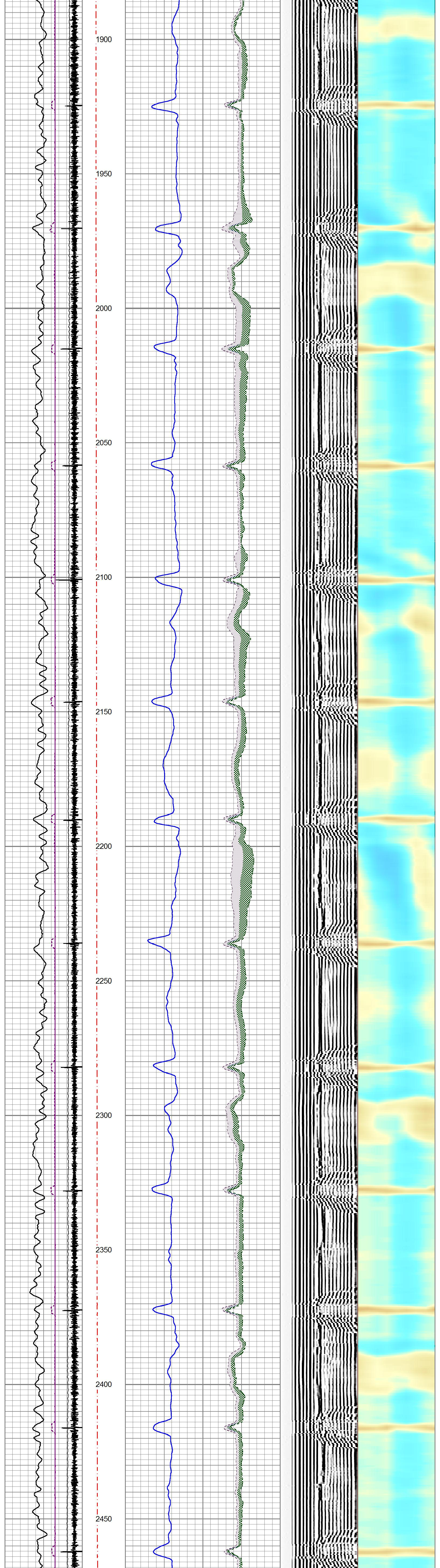
5 in / 100 ft

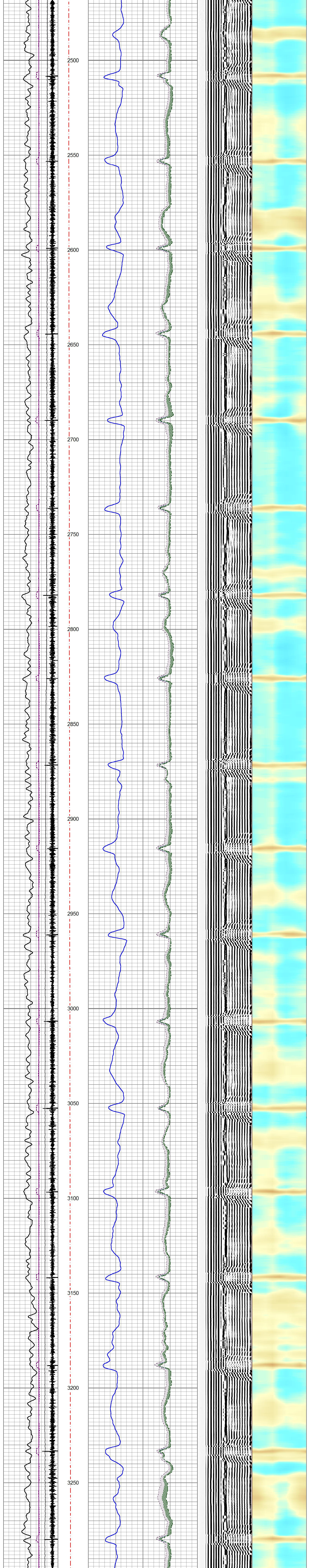
| | |
|---|---|
| Database File | 20200116_extraction northwest a s20-25-12n_cbl\20200116_extraction northwest a s20-25-12n_cbl.db |
| Dataset Pathname | pass3 |
| Presentation Format | rcbl_8s |
| Dataset Creation | Thu Jan 16 13:57:08 2020 |
| Charted by | Depth in Feet scaled 1:240 |

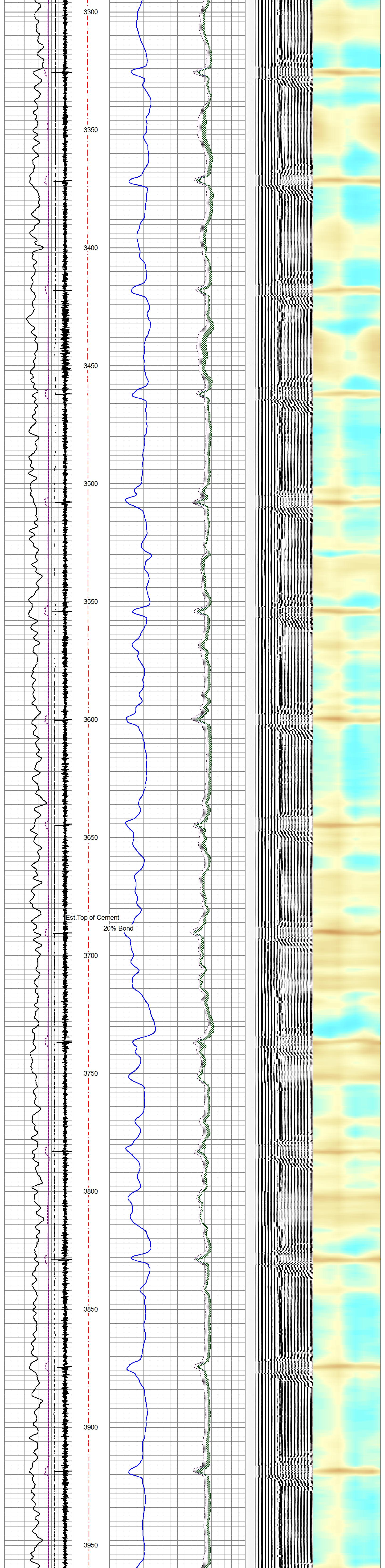


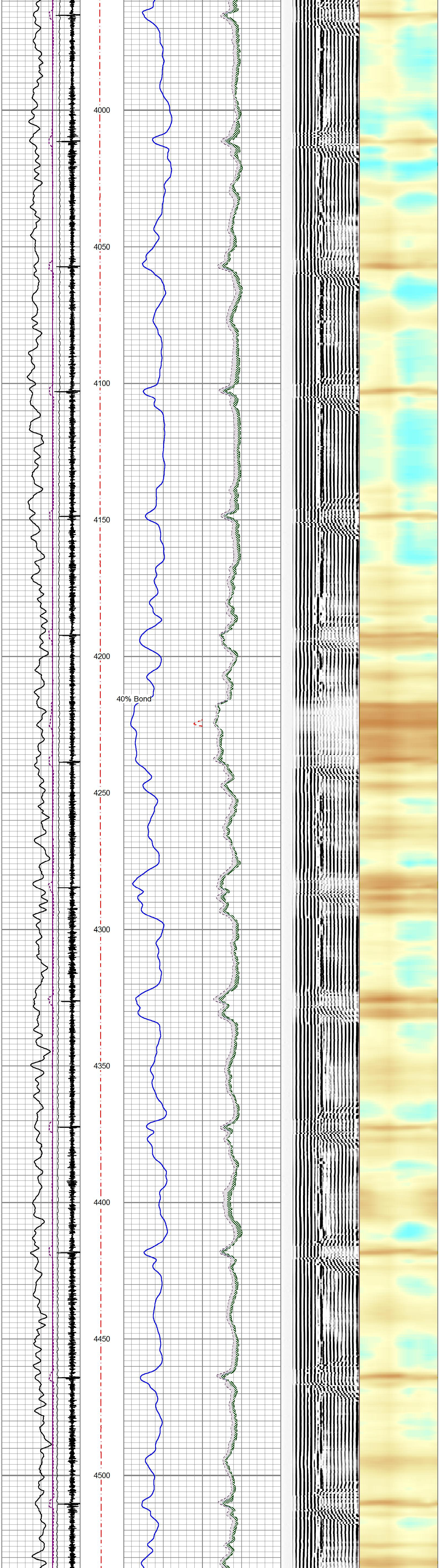


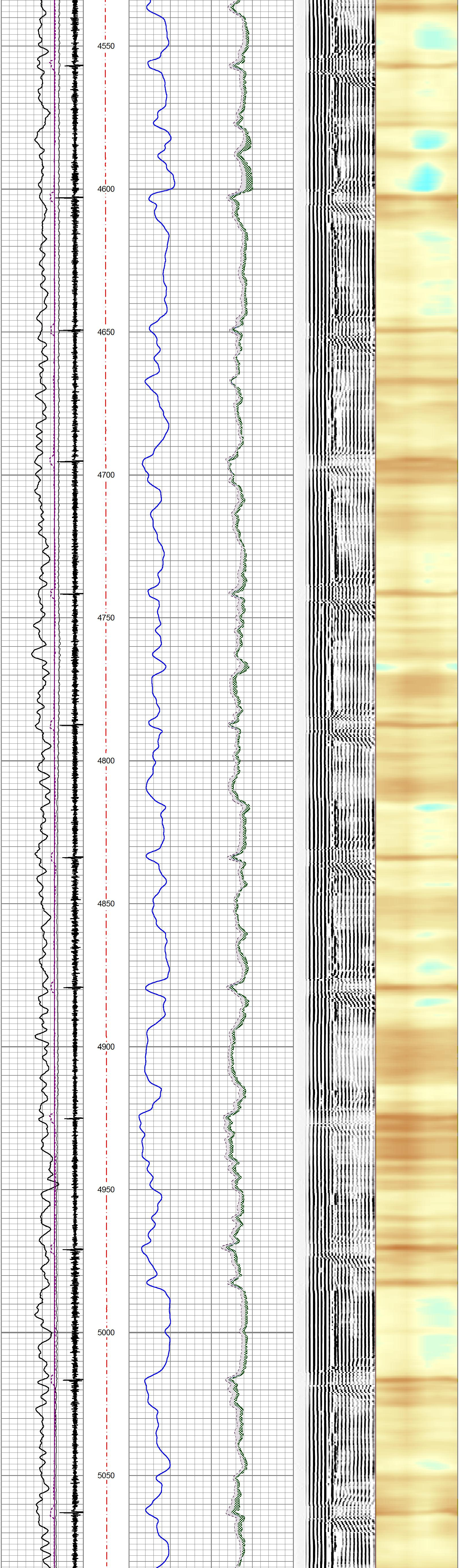




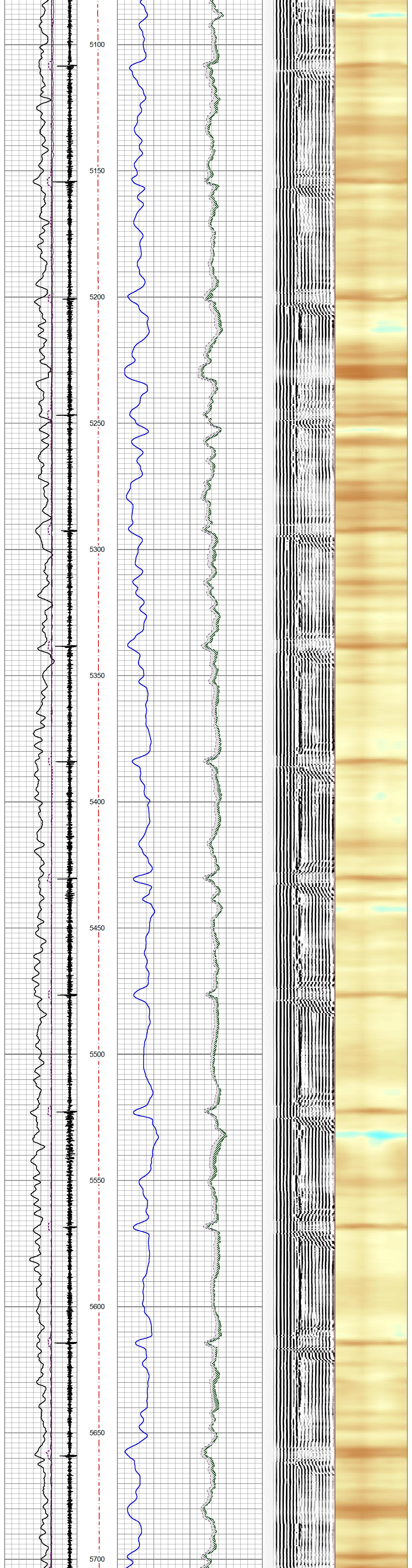


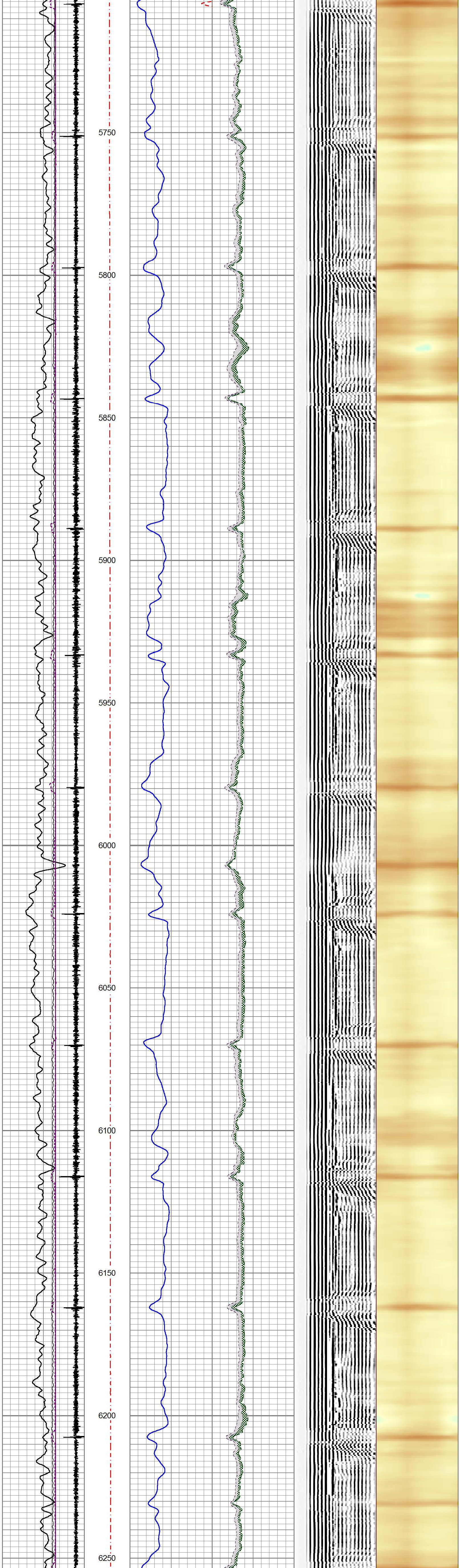

3300
3350
3400
3450
3500
3550
3600
3650
Est.Top of Cement
20% Bond
3700
3750
3800
3850
3900
3950

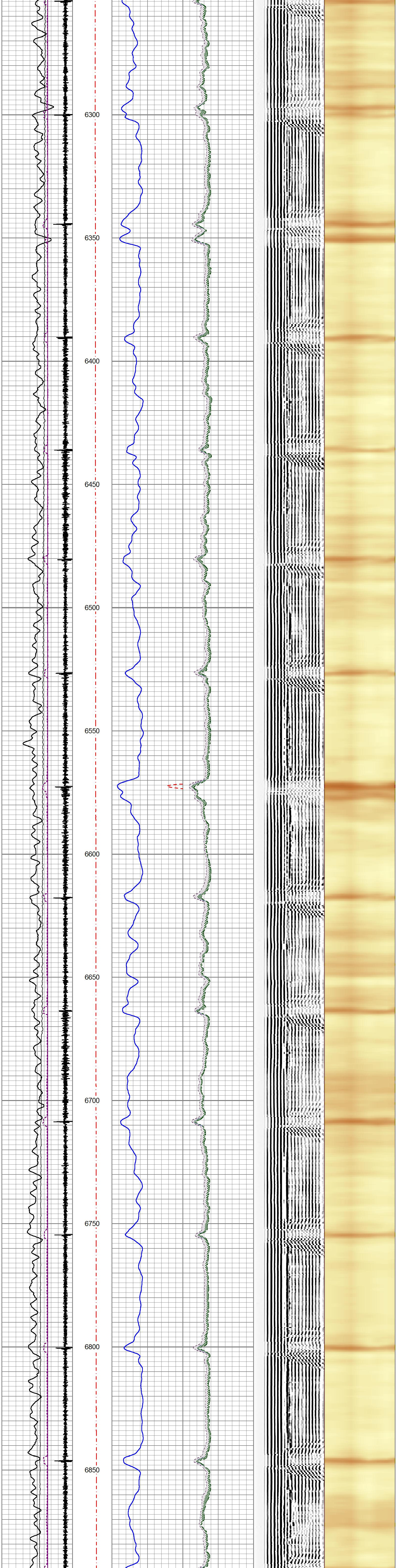

4000
4050
4100
4150
4200
40% Bond
4250
4300
4350
4400
4450
4500

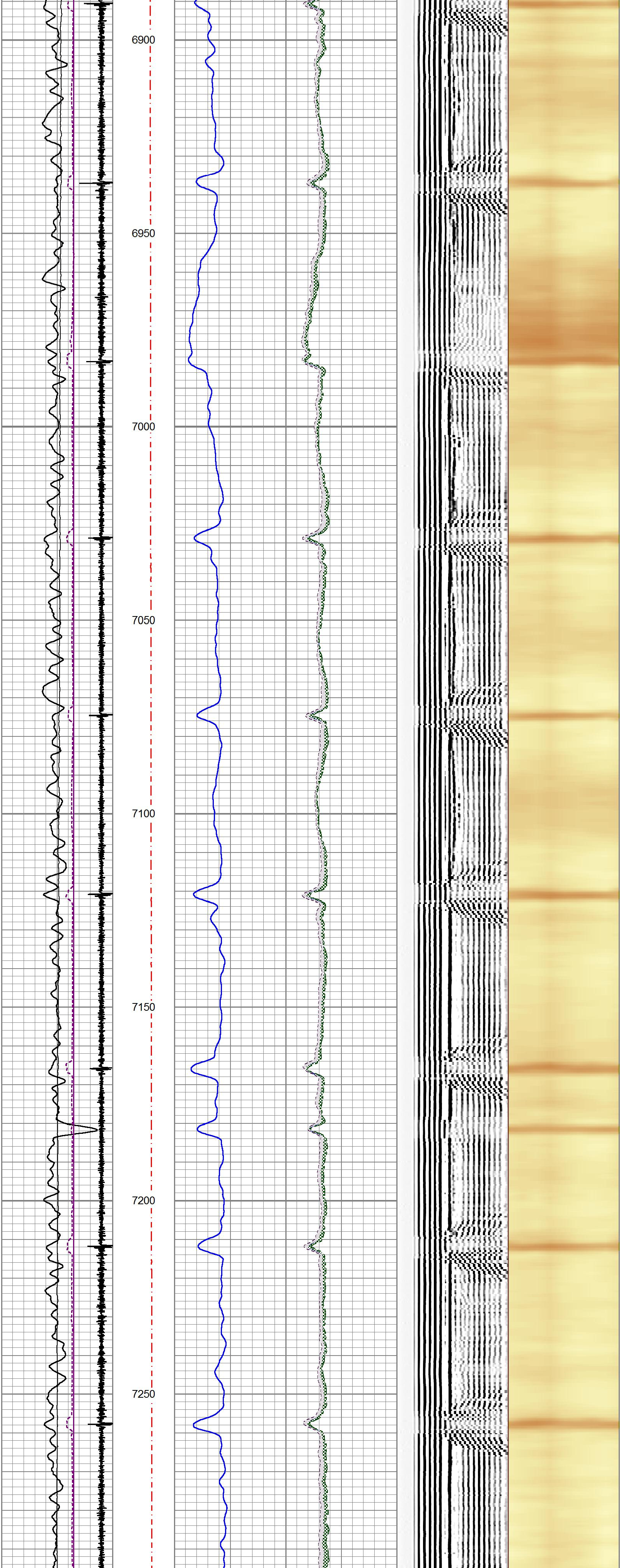


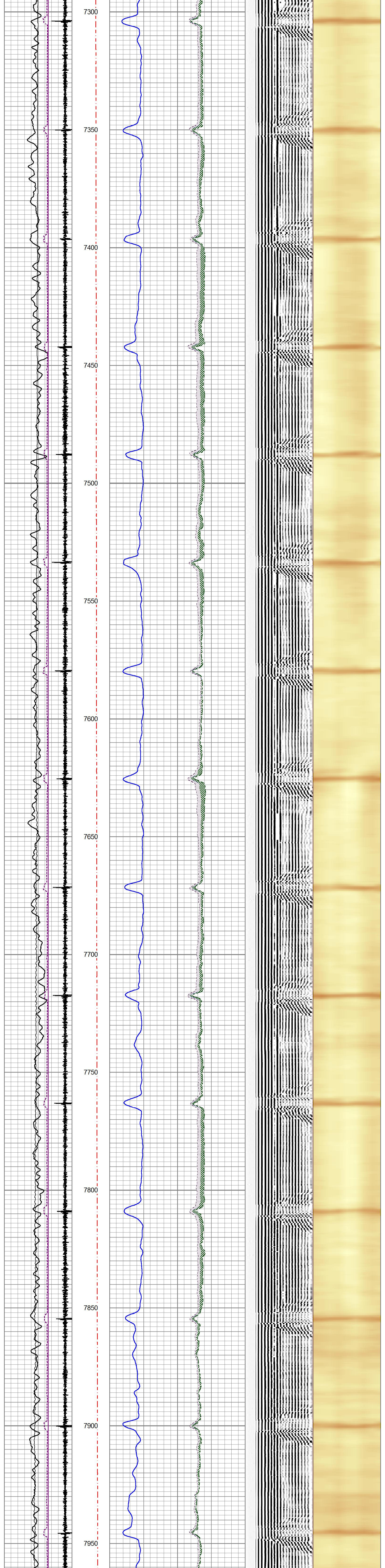
4550
4600
4650
4700
4750
4800
4850
4900
4950
5000
5050

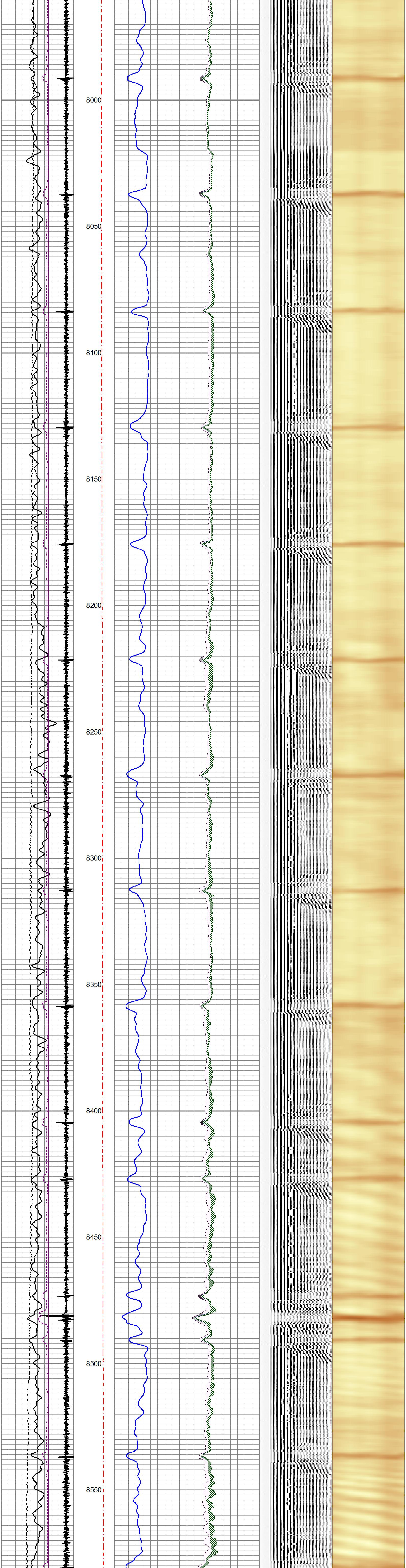

5100
5150
5200
5250
5300
5350
5400
5450
5500
5550
5600
5650
5700

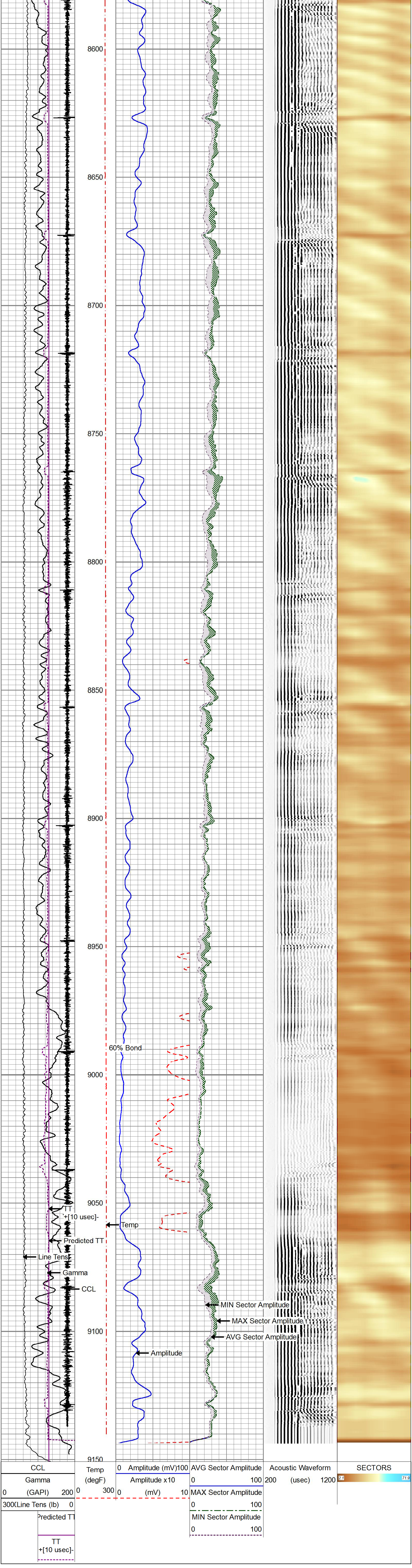

5750
5800
5850
5900
5950
6000
6050
6100
6150
6200
6250


6300
6350
6400
6450
6500
6550
6600
6650
6700
6750
6800
6850


6900
6950
7000
7050
7100
7150
7200
7250







# REPEAT PASS - Ran with Zero PSI

5 in / 100 ft

Database File 20200116_extraction northwest a s20-25-12n_cbl\20200116_extraction northwest a s20-25-12n_cbl.db
Dataset Pathname pass2
Presentation Format rcbl_8s
Dataset Creation Thu Jan 16 13:52:39 2020
Charted by Depth in Feet scaled 1:240

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

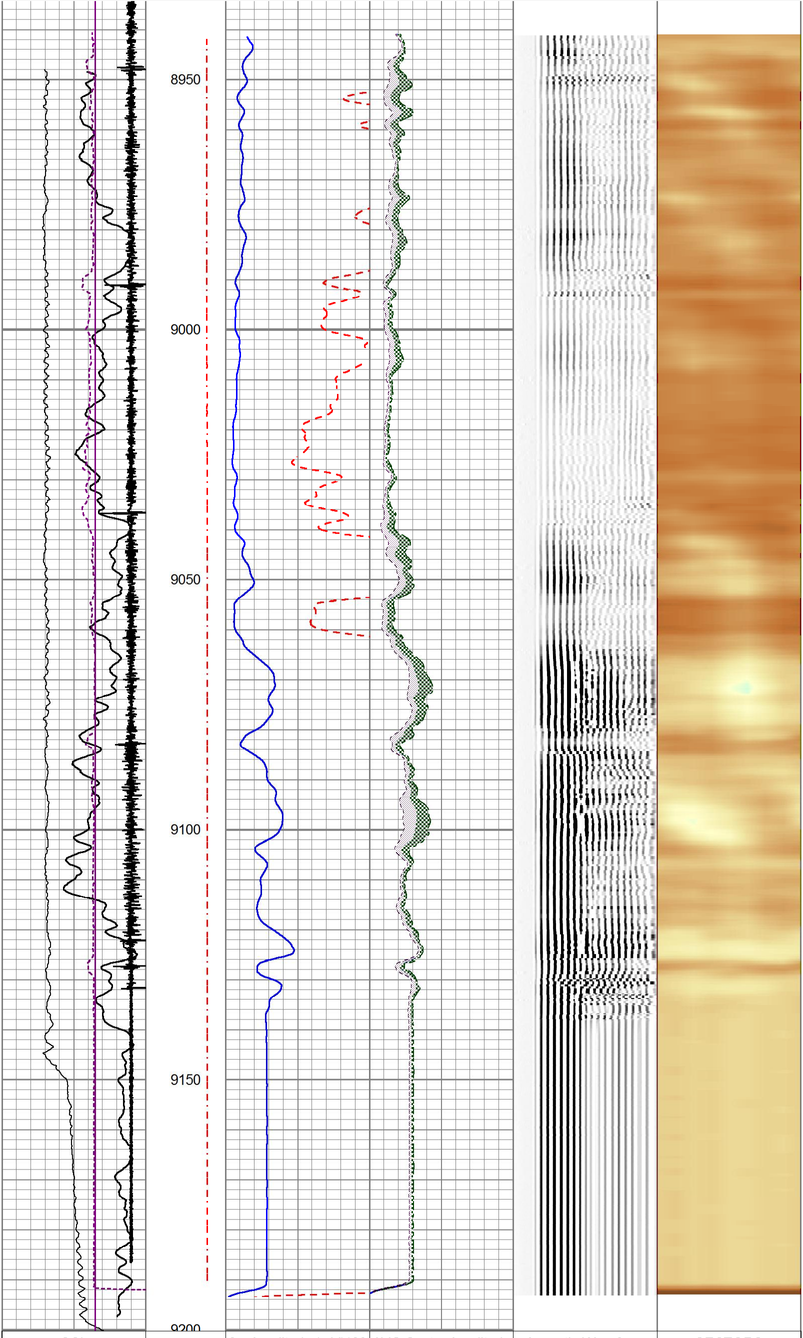
Temp
(degF)
0 300

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
2.1 71.9



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

Temp
(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
2.1 71.9

## Calibration Report

Database File d:\warrior\data\20200116_extraction northwest a s20-25-12n_cbl\20200116_extraction northwest a s20-25-1
Dataset Pathname pass3
Dataset Creation Thu Jan 16 13:57:08 2020

### Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | IXEM9-01 | |
| Tool Model: | 2 3/4" TekCo | |
| Performed: | Fri Sep 13 16:16:19 2019 | |
| Calibrator Value: | 194.0 | GAPI |
| Background Reading: | 58.0 | cps |
| Calibrator Reading: | 330.4 | cps |
| Sensitivity: | 0.7121 | GAPI/cps |

### Segmented Cement Bond Log Calibration Report

Serial Number: IRB34-03
Tool Model: 2 3/4" RIB Analog

Master Calibration, performed (Derived):

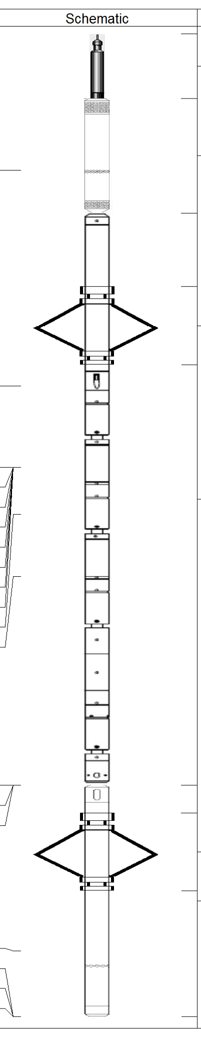
| | Raw (v) | | Calibrated (mv) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | -0.016 | 0.933 | 0.000 | 71.921 | 75.792 | 1.239 |
| CAL | -0.004 | 0.746 | | | | |
| 5' | 0.001 | 1.030 | 0.000 | 71.921 | 69.881 | -0.071 |
| SUM | | | | | | |
| S1 | 0.007 | 1.243 | 0.000 | 72.000 | 58.240 | -0.415 |
| S2 | 0.006 | 1.169 | 0.000 | 72.000 | 61.924 | -0.365 |
| S3 | 0.006 | 1.096 | 0.000 | 72.000 | 66.017 | -0.369 |
| S4 | 0.006 | 1.193 | 0.000 | 72.000 | 60.678 | -0.362 |
| S5 | 0.008 | 1.270 | 0.000 | 72.000 | 57.023 | -0.435 |
| S6 | 0.009 | 1.392 | 0.000 | 72.000 | 52.062 | -0.471 |
| S7 | 0.010 | 1.549 | 0.000 | 72.000 | 46.787 | -0.470 |
| S8 | 0.009 | 1.466 | 0.000 | 72.000 | 49.406 | -0.452 |

### 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) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb |
|---|---|---|---|---|---|---|
| | |  | CableHead-TitanConeType2 | 1.03 | 1.44 | 3.60 |
| CCL | 13.50 | | CCL_Log-2 3/4" TekCo (IS2T1-08) | 1.83 | 2.75 | 33.00 |
| | | | Antelope-Overbody | 1.25 | 2.75 | |
| TEMP | 10.05 | | | | | |
| WVFS8 | 8.76 | | | | | |
| WVFS7 | 8.76 | | | | | |
| WVFS6 | 8.76 | | RBTA-2 3/4" RIB Analog (IRB34-03) | 9.13 | 2.75 | 102.00 |
| 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 | | | | | |
| | | | Antelope-Overbody | 1.25 | 2.75 | |
| | | | GR_Log-2 3/4" TekCo (IXEM9-01) | 3.68 | 2.75 | 47.00 |
| GR | 1.04 | | | | | |
| LOCTIM | 0.00 | | | | | |
| UTCTIM | 0.00 | | | | | |
| PMON | 0.00 | | | | | |

Dataset: 20200116_extraction northwest a s20-25-12n_cbl.db: field/well/run1/pass3
Total length: 15.67 ft
Total weight: 185.60 lb
O.D.: 2.75 in

| | | | |
|---|---|---|---|
| **Company** | Extraction Oil and as Inc. | | |
| **Well** | Northwest A 520-25-12N | | |
| **Field** | Wattenberg | | |
| **County** | Broomfield | | |
| **State** | Colorado | **Country** | U.S.A. |