



Radial Cement Bond Log
Gamma Ray
CCL

| | | | |
|--|------------------------|-----------|--|
| Company | KERR MCGEE OIL AND GAS | | |
| Well | CLARK FRANCIS UT B 1 | | |
| Field | WATTENBERG | | |
| County | WELD | State | COLORADO |
| Location: | API # : 05-123-07740 | | Other Services |
| SHL: 1120' FSL 990' FWL SW/SW LAT: 40.04690 LONG: -104.86370 SEC 14 TWP 1N RGE 67W | | | |
| Permanent Datum | GL | Elevation | 4984' |
| Log Measured From | K.B. 10' | | |
| Drilling Measured From | KB | | |
| | | Elevation | K.B. 4994' D.F. 4993' G.L. 4984' |

| | |
|------------------------|-----------|
| Date | 8-10-2015 |
| Run Number | ONE |
| Depth Driller | 8172 |
| Depth Logger | 1710' |
| Bottom Logged Interval | 1710' |
| Top Log Interval | SURFACE |
| Open Hole Size | 7.625 |
| Type Fluid | WATER |
| Density / Viscosity | 1.0 |
| Max. Recorded Temp. | 96 DEG F |
| Estimated Cement Top | 269' |
| Time Well Ready | N/A |
| Time Logger on Bottom | N/A |
| Equipment Number | 3812 |
| Location | GREELEY |
| Recorded By | N.POLLOCK |
| Witnessed By | B.SMITH |

| Borehole Record | | | Tubing Record | | | | |
|-----------------|-----|------|---------------|------|--------|------|----|
| Run Number | Bit | From | To | Size | Weight | From | To |
| ONE | | | | | | | |
| TWO | | | | | | | |

| | | | | |
|-------------------|------|--------|---------|--------|
| Casing Record | Size | Wgt/Ft | Top | Bottom |
| Surface String | 8.63 | 24# | SURFACE | 219' |
| Prot. String | | | | |
| Production String | 4.5 | 11.6# | SURFACE | 8150' |
| Liner | | | | |

<<< Fold Here >>>

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 C.B.L. TO VERIFY CEMENT TOP

FREE PIPE CALIBRATION 1310' (81mA)
CORRELATED TO DV TOOL

THANK YOU FOR USING WARRIOR ENERGY SERVICES!

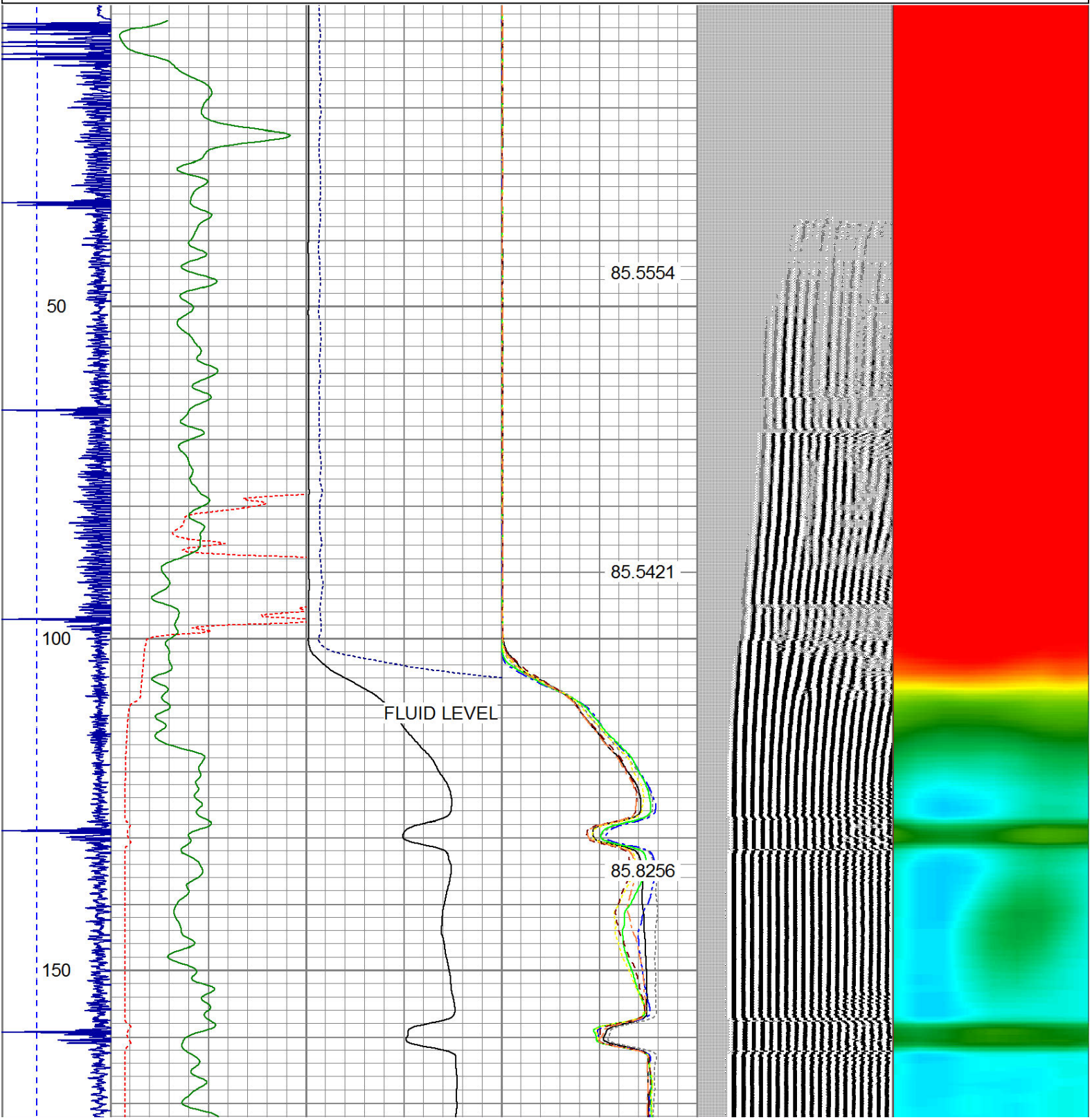
| Sensor | Offset (ft) | Schematic | Description | Len (ft) | OD (in) | Wt (lb) |
|--------|-------------|-----------|-------------|----------|---------|---------|
| CENT | 19.08 | | | | | |

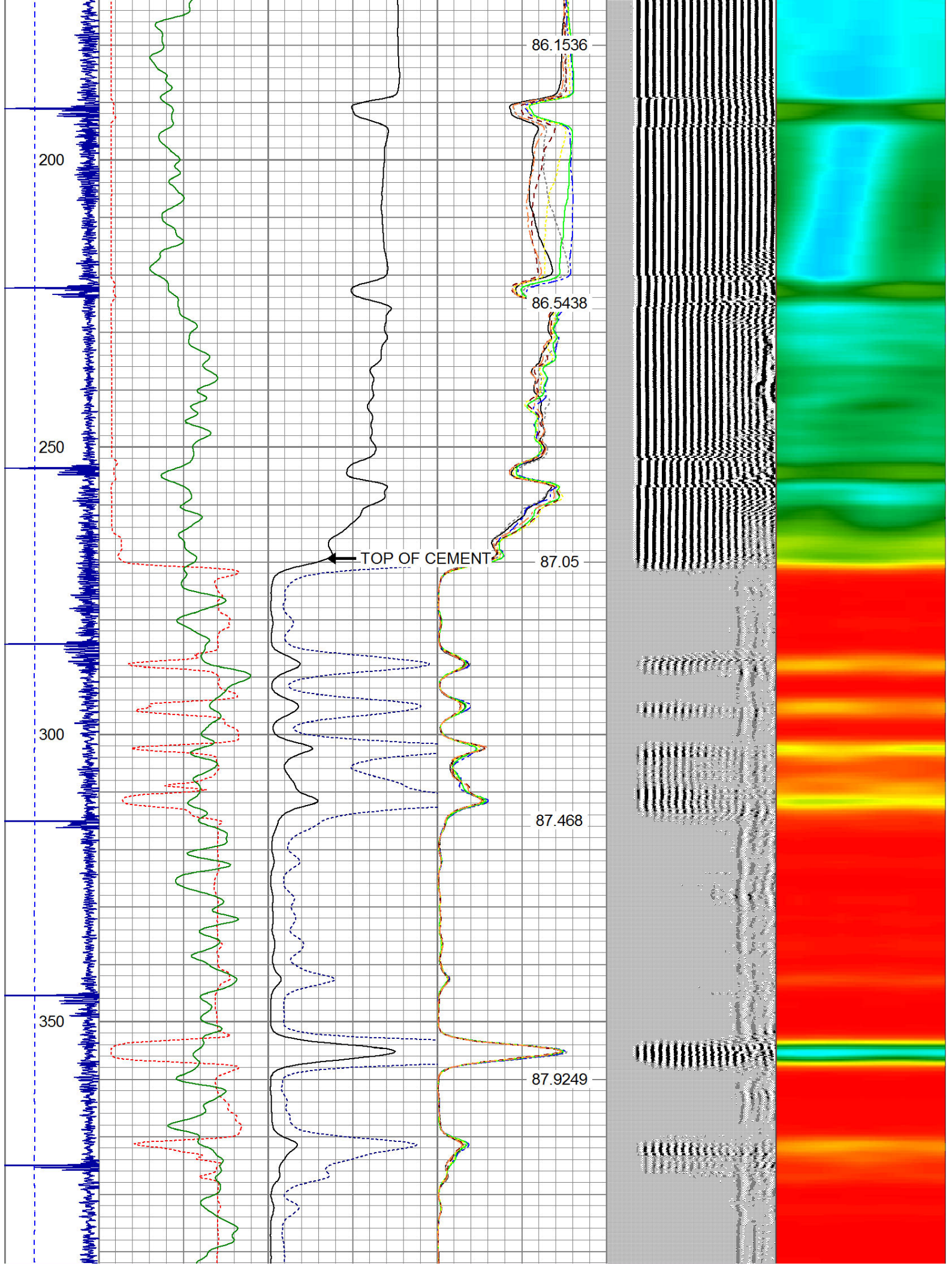
[illegible]

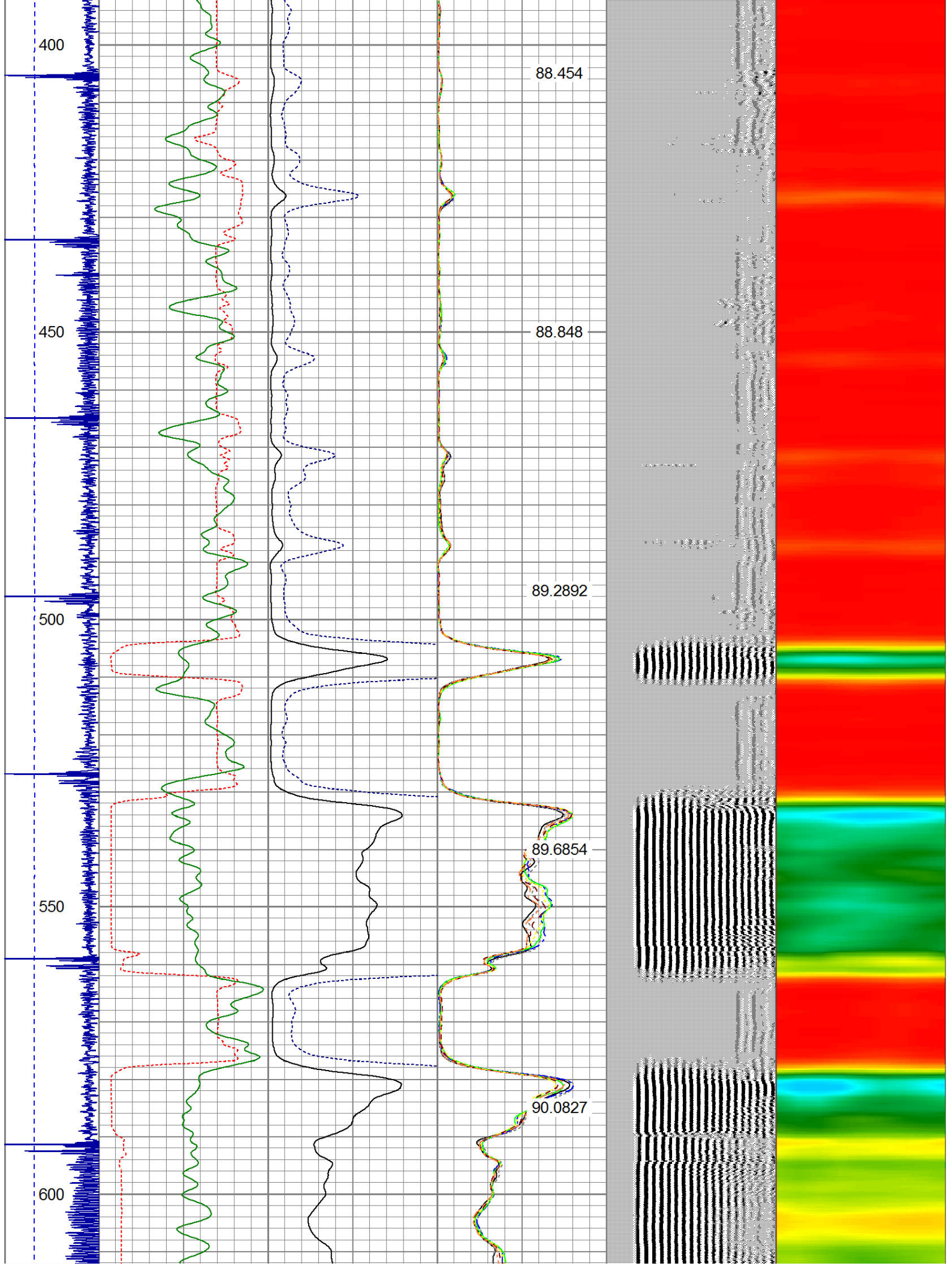
Dataset Creation: Mon Aug 10 13:21:05 2015 by Log 7.0 B1

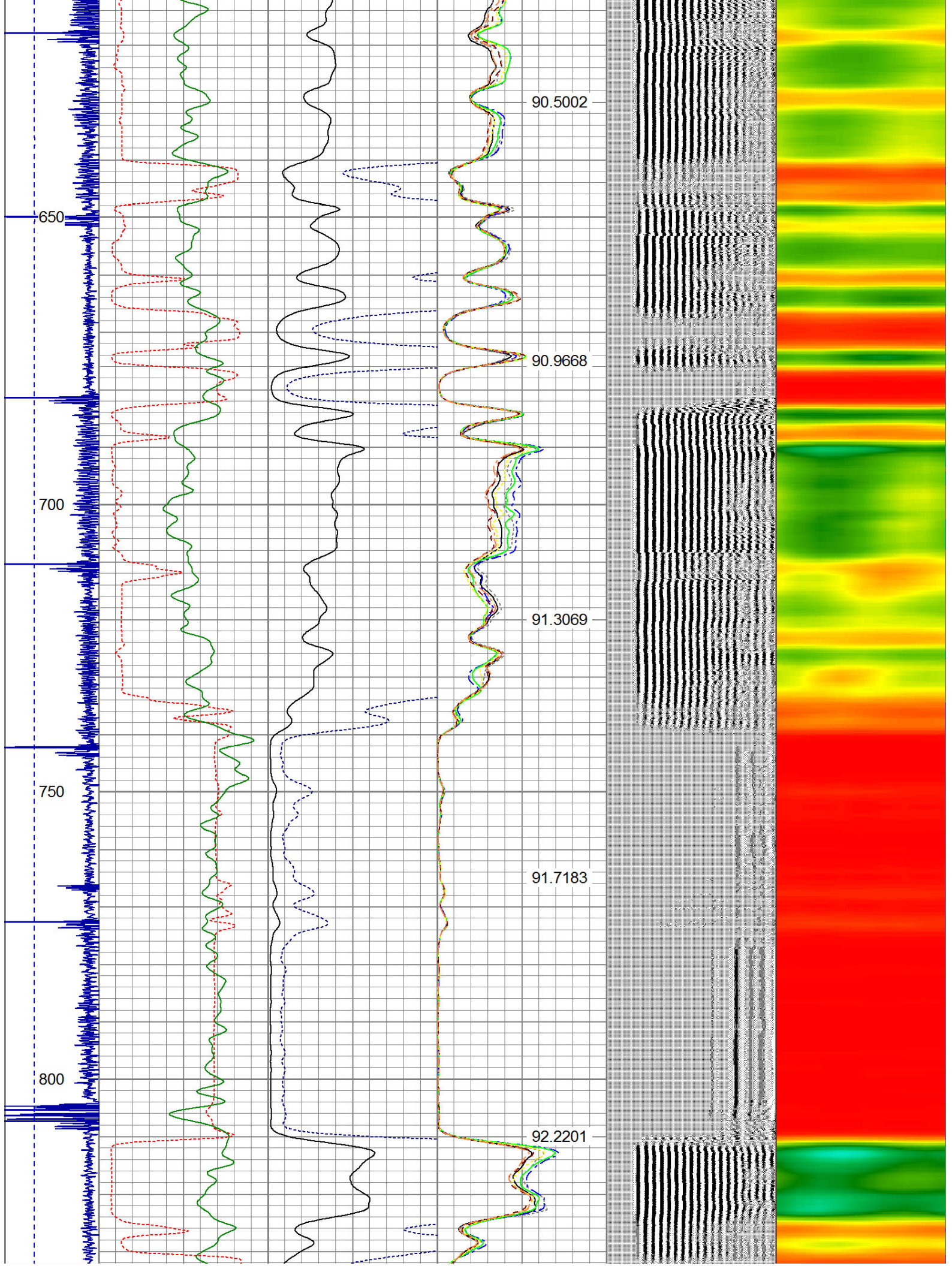
Charted by: Depth in Feet scaled 1:240

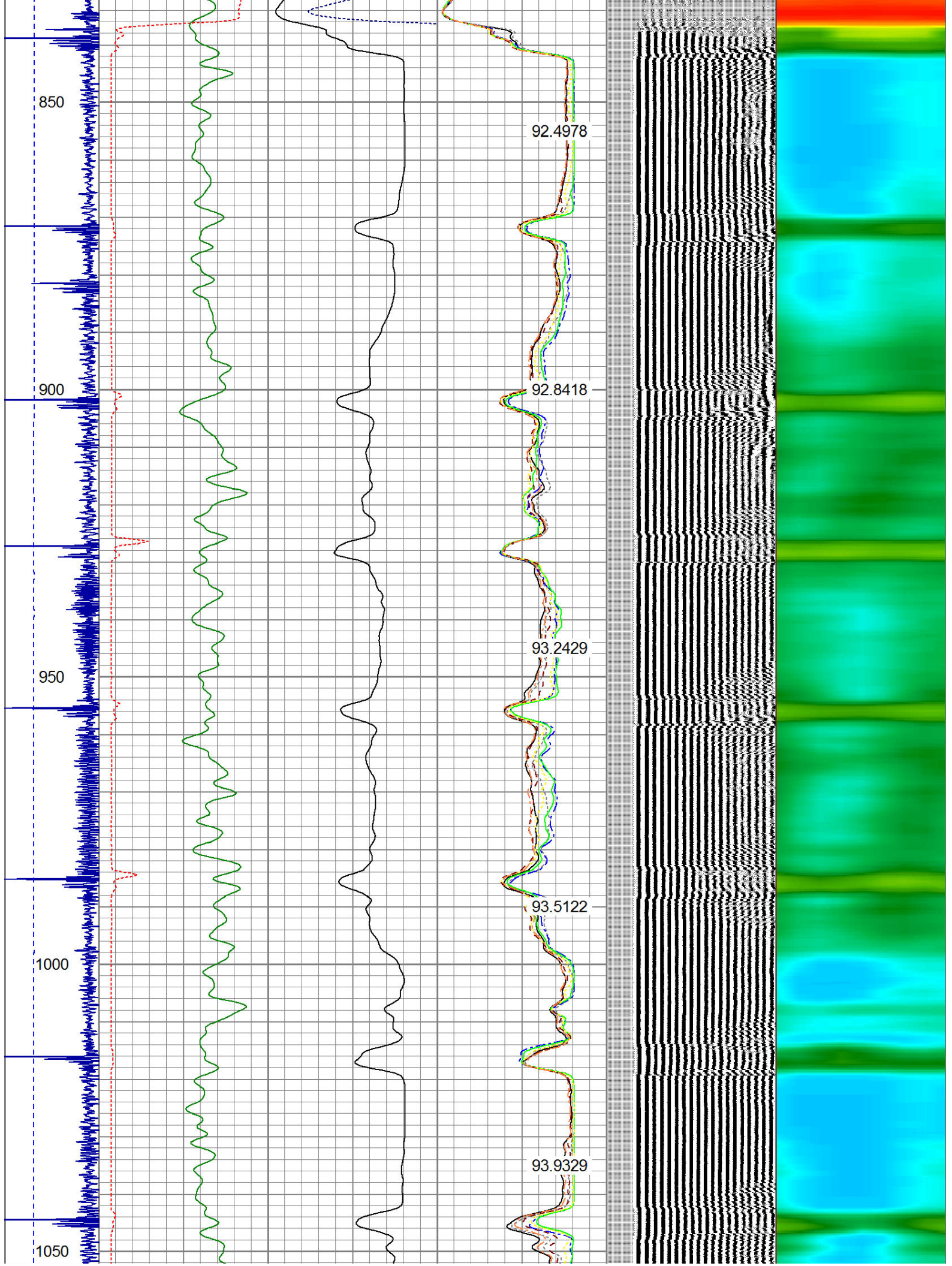
| | | | | | | | | | | | | | | | | | |
|----------|-----|---|-----|-----------|------|---|------------|-----|---|-------|---------|-----|-----|------|---|------------|---|
| -9 | CCL | 1 | 200 | TT (usec) | 1000 | 0 | AMP (mV) | 100 | 0 | AMPS1 | 100 | 200 | VDL | 1200 | 1 | Cement Map | 8 |
| LSPD |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

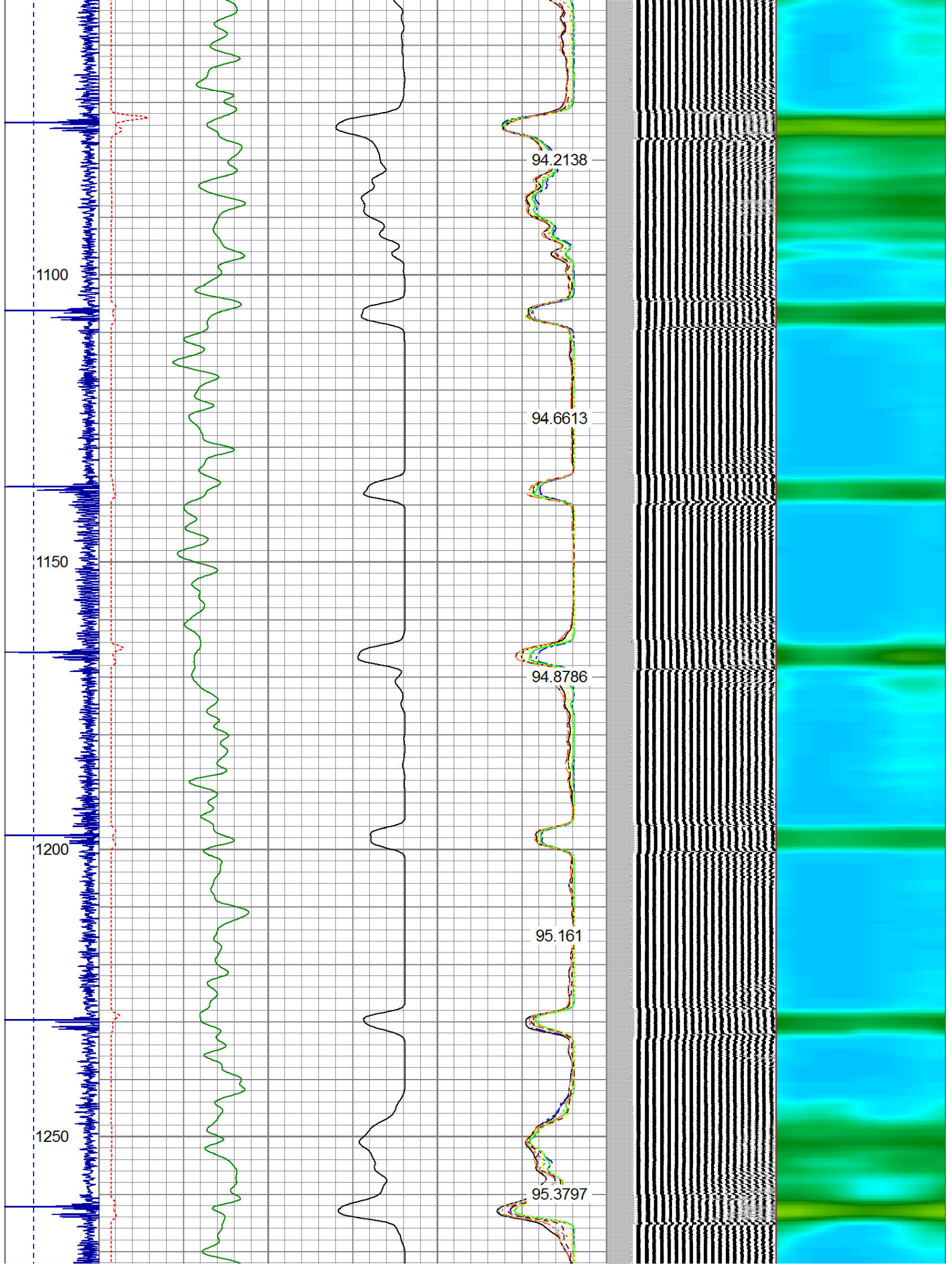


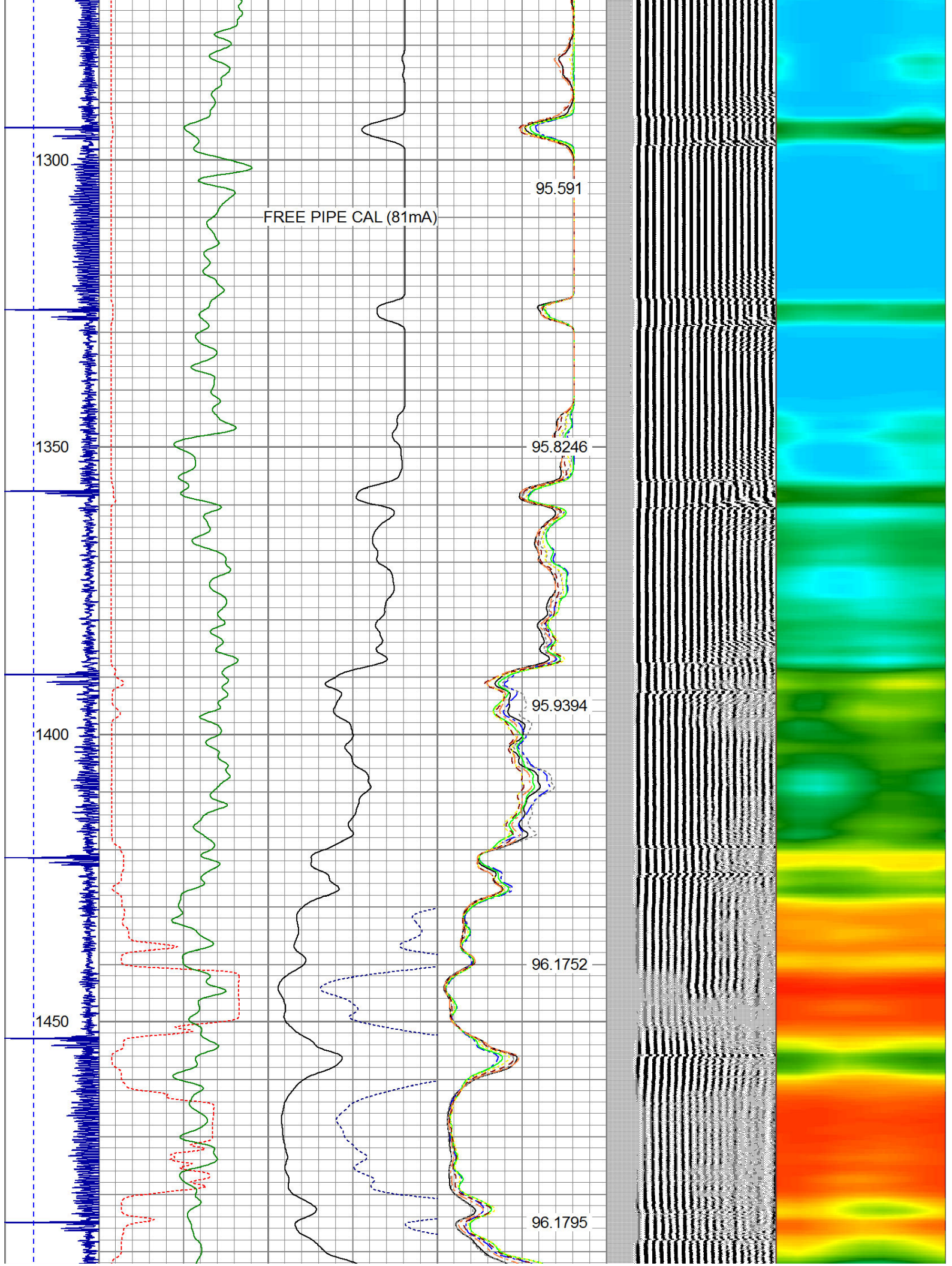


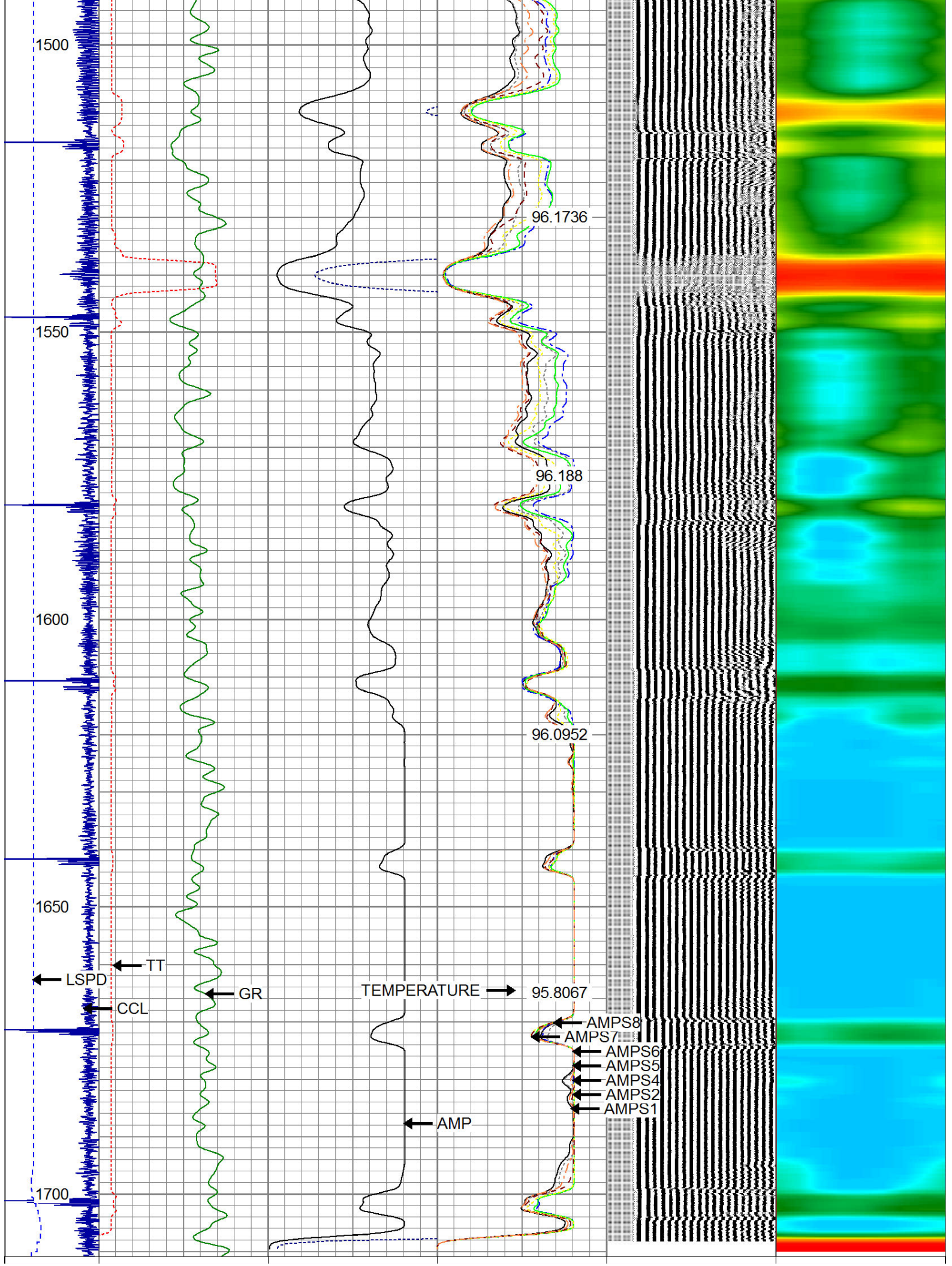














| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|-----|----------|-----|-----------|------------|----|----------|-------|-----|-------------------|-------|-----|--|------|---|------------|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 9 | CCL | 1 | 200 | TT (usec)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

| Calibration Report | | | | | | |
|--|-------------|--|-----|----------|-----|---------------|
| Database File: | | clark francis ut b 1.db | | | | |
| Dataset Pathname: | | pass3 | | | | |
| Dataset Creation: | | Mon Aug 10 13:21:05 2015 by Log 7.0 B1 | | | | |
| Gamma Ray Calibration Report | | | | | | |
| Serial Number: | | 275 | | | | |
| Tool Model: | | Probe | | | | |
| Performed: | | Wed Jul 16 08:14:01 2014 | | | | |
| Calibrator Value: | | 120.0 | | cps | | |
| Background Reading: | | 30.0 | | cps | | |
| Calibrator Reading: | | 210.0 | | cps | | |
| Sensitivity: | | 1.1000 | | cps/cps | | |
| Compensated Neutron Calibration Report | | | | | | |
| Serial Number: | | 275 | | | | |
| Tool Model: | | Probe_B | | | | |
| CALIBRATION | | Wed Jul 30 08:47:19 2008 | | | | |
| 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 | | | | |

Segmented Cement Bond Log Calibration Report

Serial Number:

Base

Tool Model:

Probe

Calibration Casing Diameter:

4.500

in

Calibration Depth:

1155.367

ft

Master Calibration, performed Mon Aug 10 13:18:03 2015:

| | Raw (v) | | Calibrated (mv) | | Results | |
|-----|---------|-------|-----------------|--------|---------|--------|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.012 | 2.500 | 1.500 | 81.196 | 32.033 | 1.114 |
| CAL | 1.553 | 2.500 | | | | |
| 5' | 0.011 | 2.407 | 1.500 | 81.196 | 33.264 | 1.126 |
| SUM | | | | | | |
| S1 | 0.011 | 2.499 | 0.500 | 81.000 | 32.352 | 0.141 |
| S2 | 0.012 | 2.500 | 0.500 | 81.000 | 32.350 | 0.124 |
| S3 | 0.010 | 2.500 | 0.500 | 81.000 | 32.333 | 0.167 |
| S4 | 0.010 | 2.500 | 0.500 | 81.000 | 32.335 | 0.162 |
| S5 | 0.011 | 2.500 | 0.500 | 81.000 | 32.348 | 0.129 |
| S6 | 0.010 | 2.500 | 0.500 | 81.000 | 32.335 | 0.163 |
| S7 | 0.015 | 2.500 | 0.500 | 81.000 | 32.397 | 0.008 |
| S8 | 0.012 | 2.500 | 0.500 | 81.000 | 32.349 | 0.127 |

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 | 1.553 | 2.500 | 1.000 | 0.000 |

Air Zero Calibration, performed Tue Jul 28 07:04:21 2015:

| | 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 | |



WARRIOR
ENERGY SERVICES

Company KERR MCGEE OIL AND GAS

Well CLARK FRANCIS UT B 1

Field WATTENBERG

County WELD

State COLORADO