HALLIBURTON

# CEMENT BOND LOG

Company CARRIZO
Well SPEAKER 1-27-11-8-61
Field WILDCAT
County WELD State CO

Company CARRIZO
Well SPEAKER 1-27-11-8-61
Field WILDCAT
County WELD State CO

API No.: 05-123-38350-0000 Serv #: 900950121
Location: LAT: 40.63923° LONG: -104.18806°

Sec: 27 Twp: 8N Rge: 61W

Other Services

N/A

Permanent Datum GL Elevation 4999'
Log Measured From KB , 12 Ft. above perm. datum
Drilling Measured From KB

Elevation
K.B. 5011'
D.F. 5010'
G.L. 4999'

| | | | |
|---|---|---|---|
| Date @ Time Logged | 5-DEC-2013 | Type Fluid in Hole | FRESH WATER |
| Run No. | ONE | Density of Fluid | 8.33 |
| Depth - Driller | 10832' | Fluid Level | SURFACE |
| Depth - Logger | 6130' | Cement Top Est. Logged | 1440' |
| Bottom - Logged Interval | 6118' | Equipment / Location | 11874896 / BRIGHTON |
| Top - Log Interval | 100' | Recorded by | JOSHUA MCDANIEL |
| Max. Recorded Temp. | 220 | Witnessed by | BLASE SHABALL |

| CEMENTING DATA | Surface String | Protection String | Production String | Liner |
|---|---|---|---|---|
| Date / Time Cemented | | | | |
| Primary / Squeeze | | | | |
| Expected Compressive Strength | psi@ hrs | psi@ hrs | psi@ hrs | psi@ hrs |
| Cement Volume | | | | |
| Cement Type / Weight | / | / | / | / |
| Formulation | | | | |
| Mud Type / Mud Wgt. | / | / | / | / |

| Borehole Record | | | | Casing & Tubing Record | | | |
|---|---|---|---|---|---|---|---|
| Run Number | Bit | From | To | Size | Weight | From | To |
| | | | | 7 | 23 | 0 | 5855' |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

<<< Fold Here >>>

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHCIH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

## Comments

PRIMARY DEPTH REFERENCE

TOL @ 5855'

ESTIMATED TOP OF CEMENT @ 1440'

MAX TEMP = 220 DEG F

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES!

HALLIBURTON

# MAIN PASS

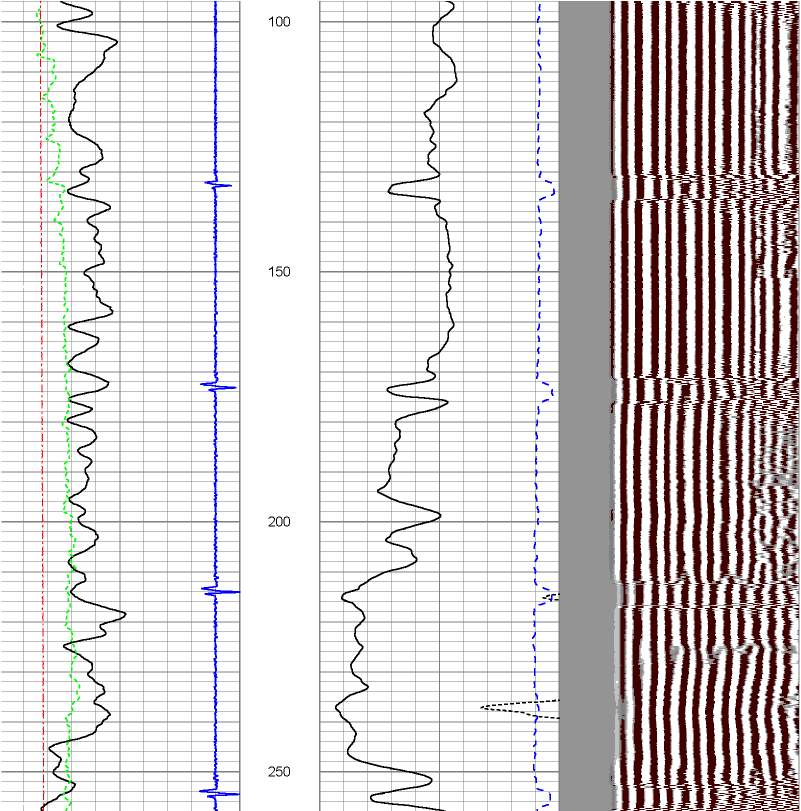
SCALE: 5"=100'

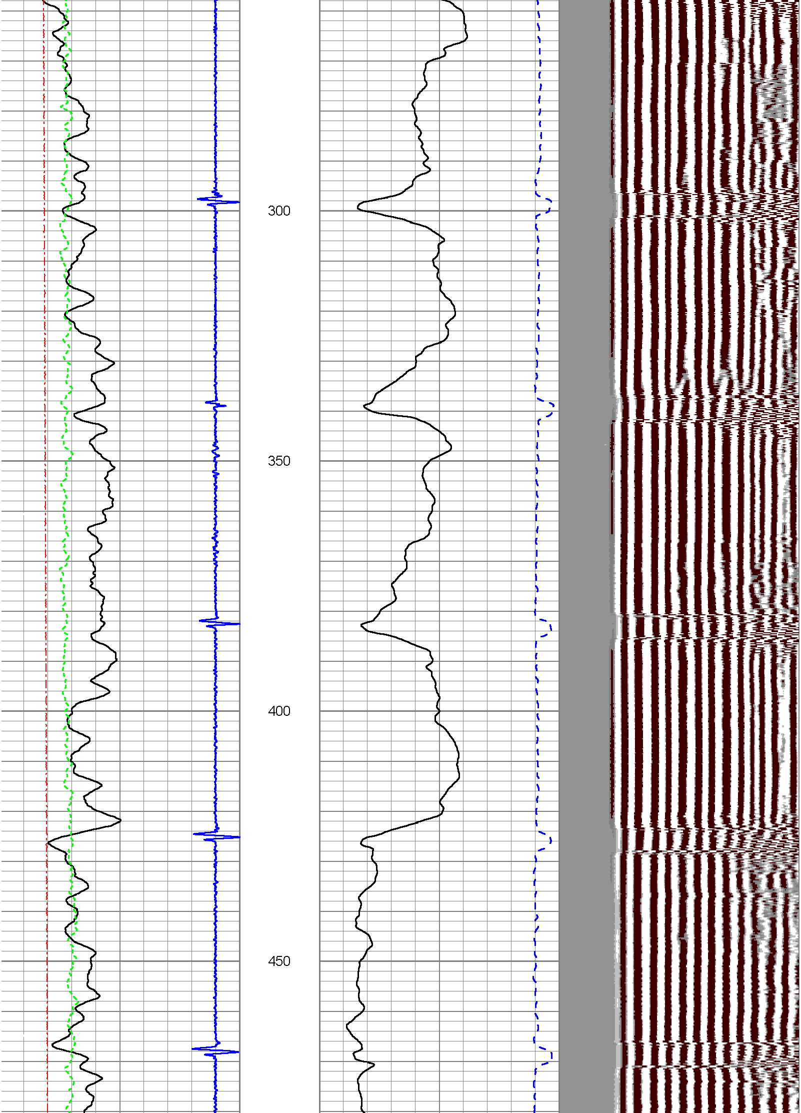
| | |
|---|---|
| Database File: | speaker_1_db.db |
| Dataset Pathname: | pass16 |
| Presentation Format: | 1cbl |
| Dataset Creation: | Thu Dec 05 12:54:51 2013 by Log Halliburton Casedho |
| Charted by: | Depth in Feet scaled 1:240 |

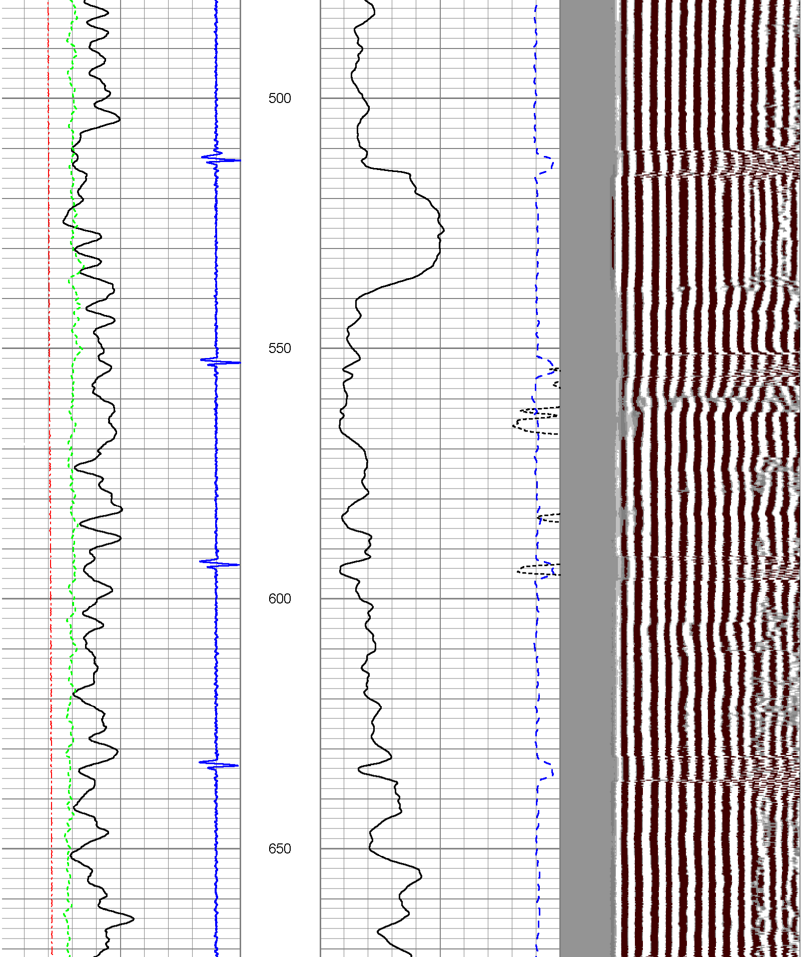
9 Collar Locator -1
0 Gamma Ray (GAPI) 150
0 LTEN (lb) 1500
0 TEMP (degF) 300

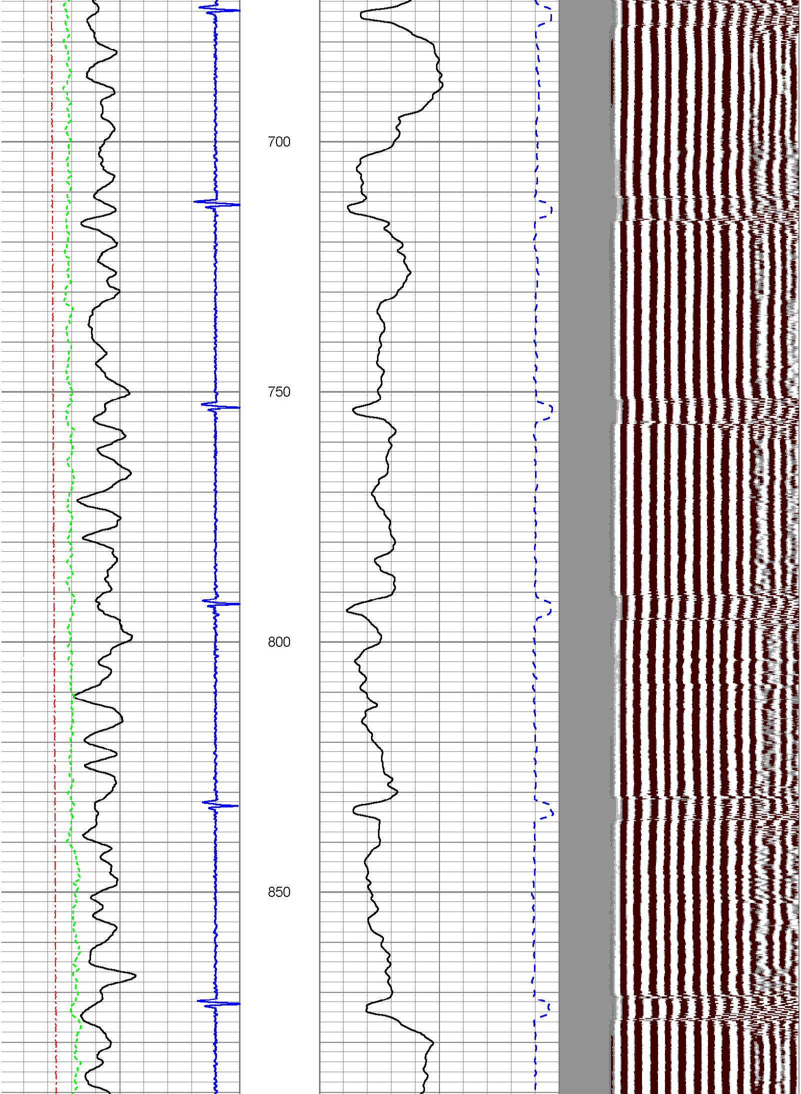
0 Amplified Amplitude (mV) 10
0 Amplitude (mV) 100
200 TRAVEL TIME (usec) 300

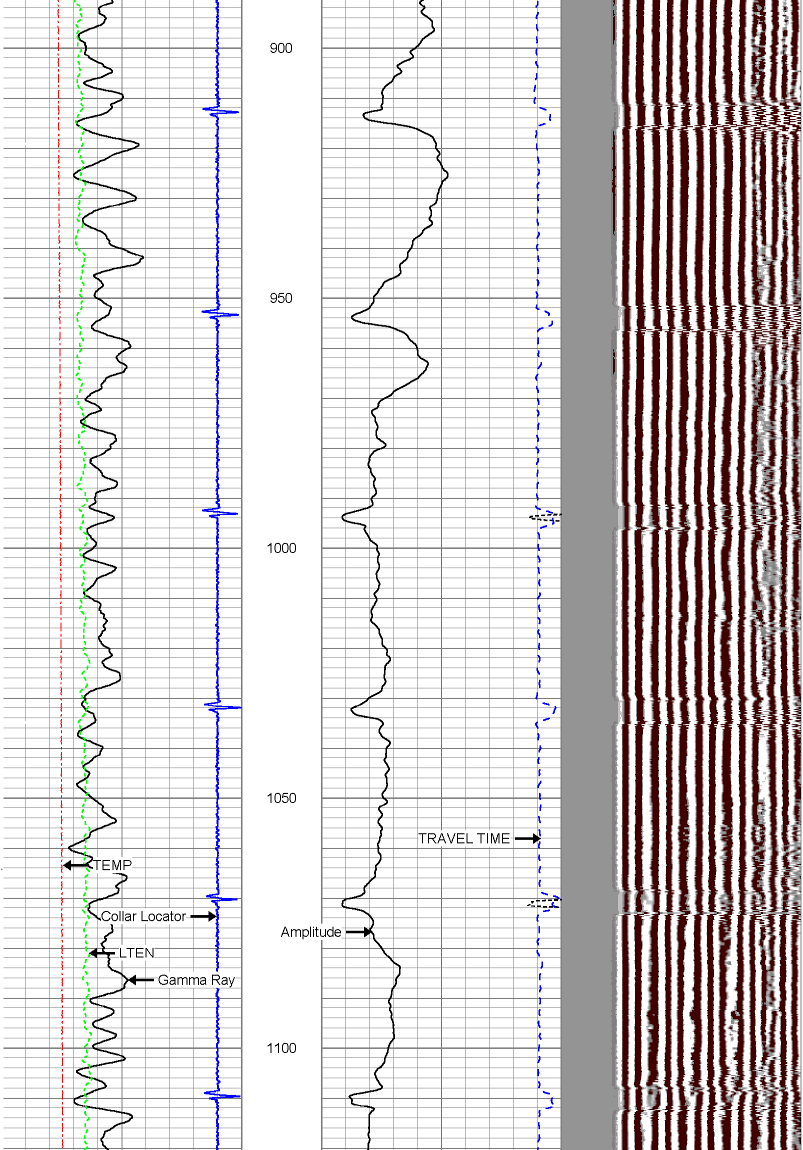
200 MSG 1200

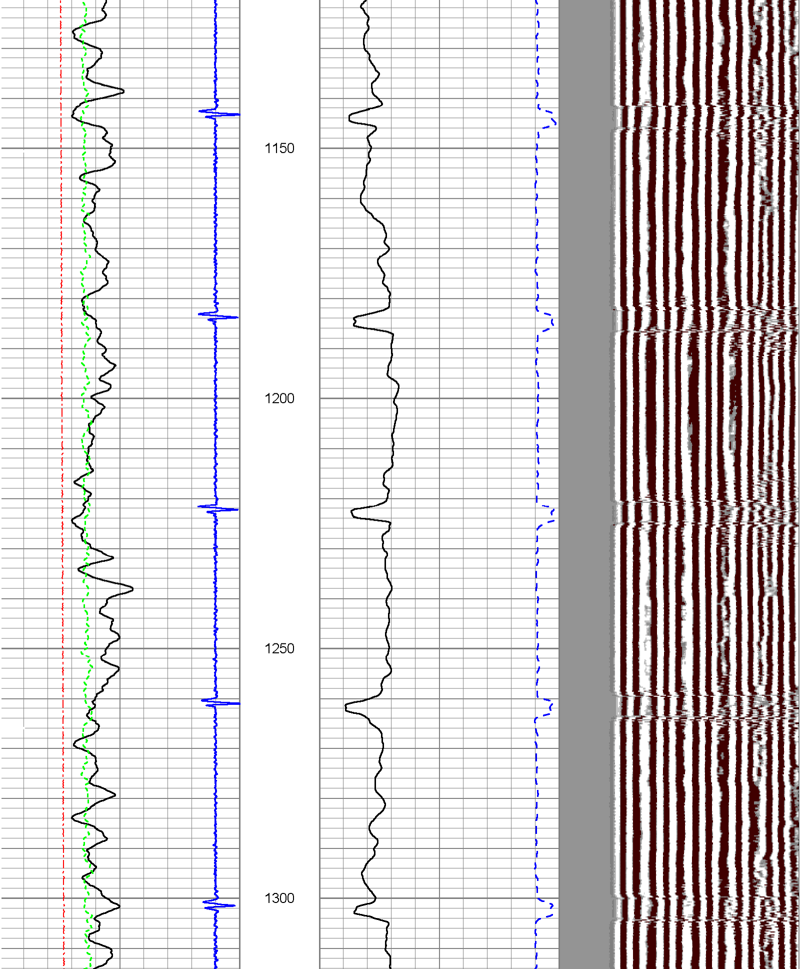


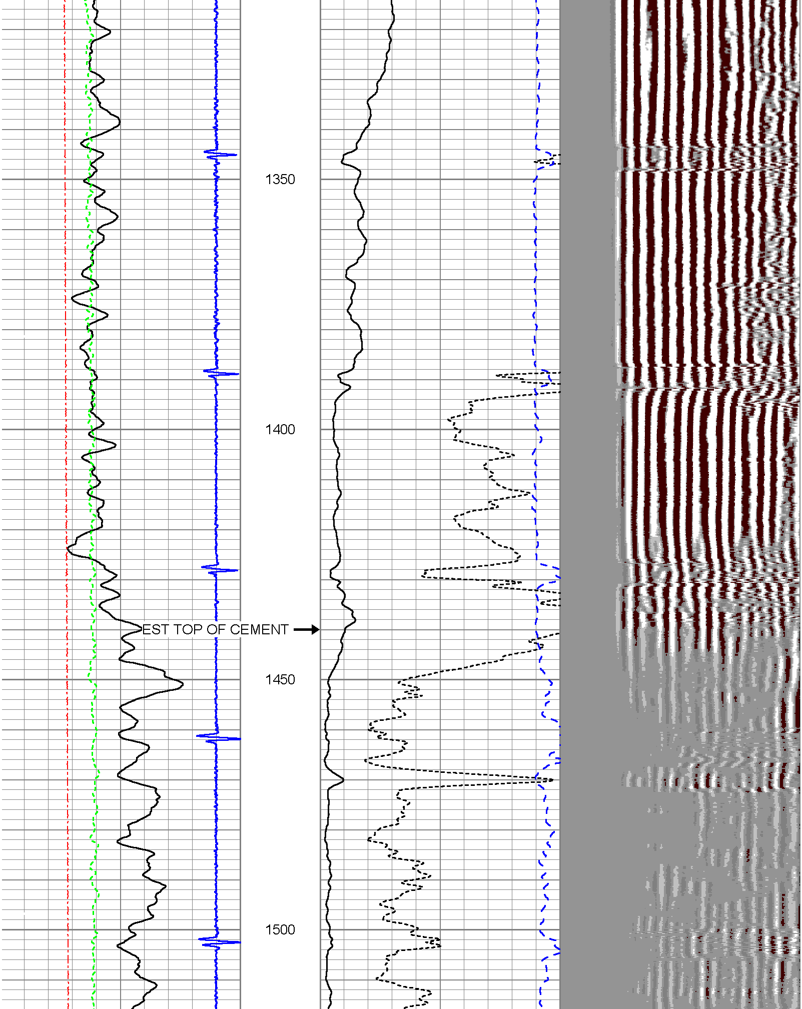


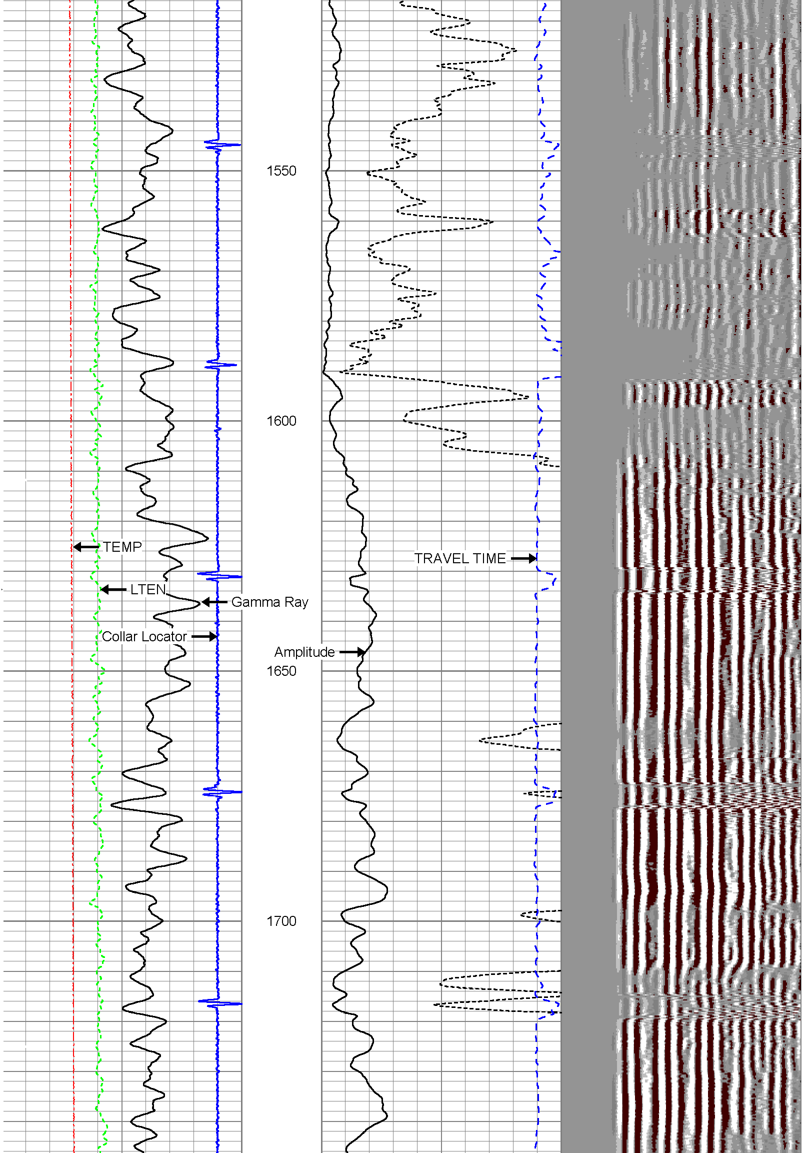


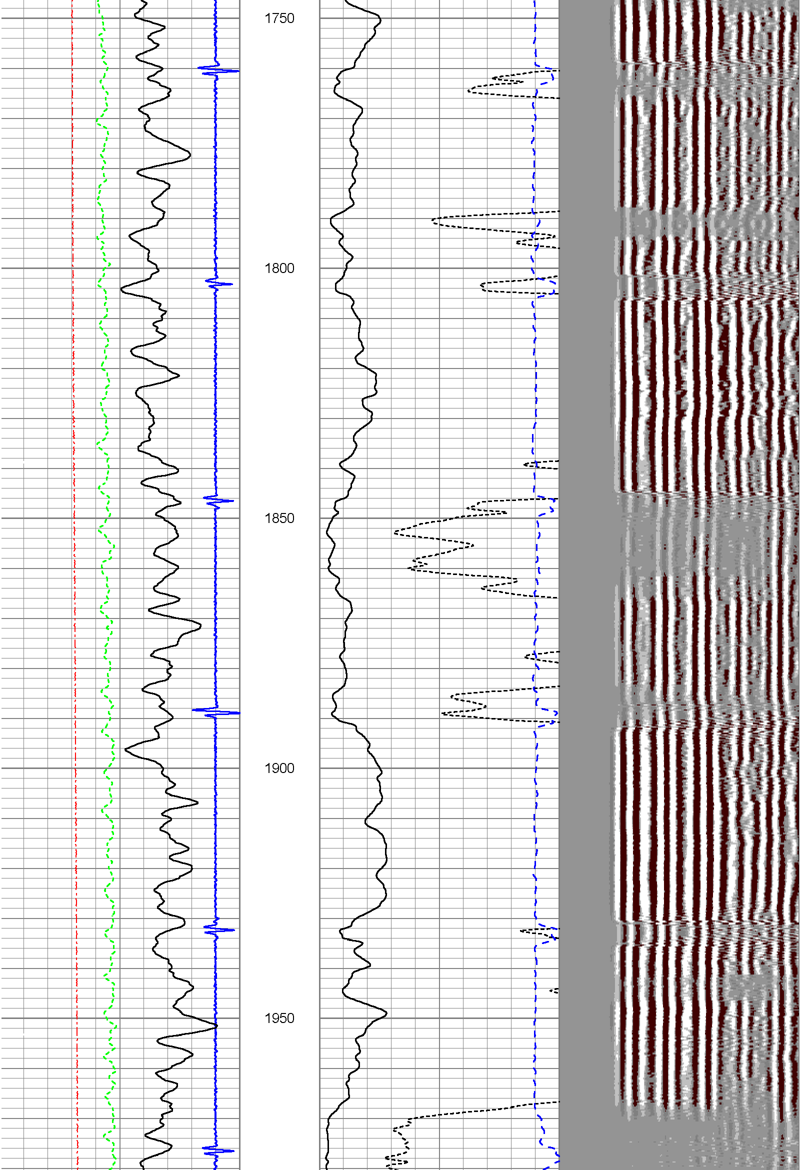


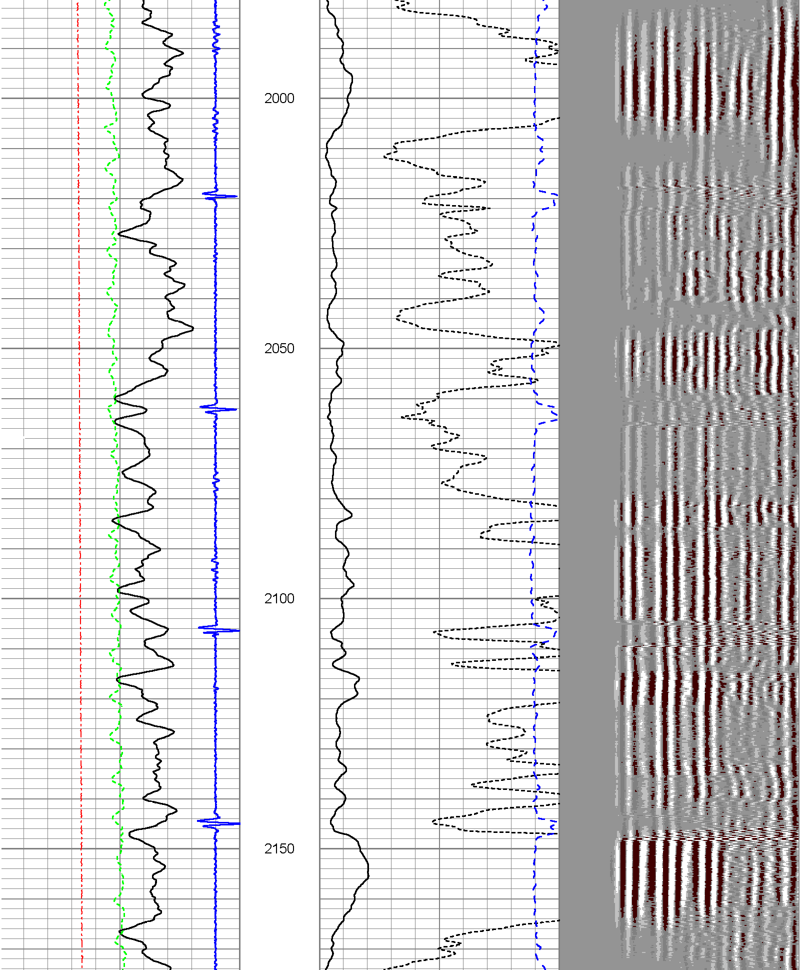


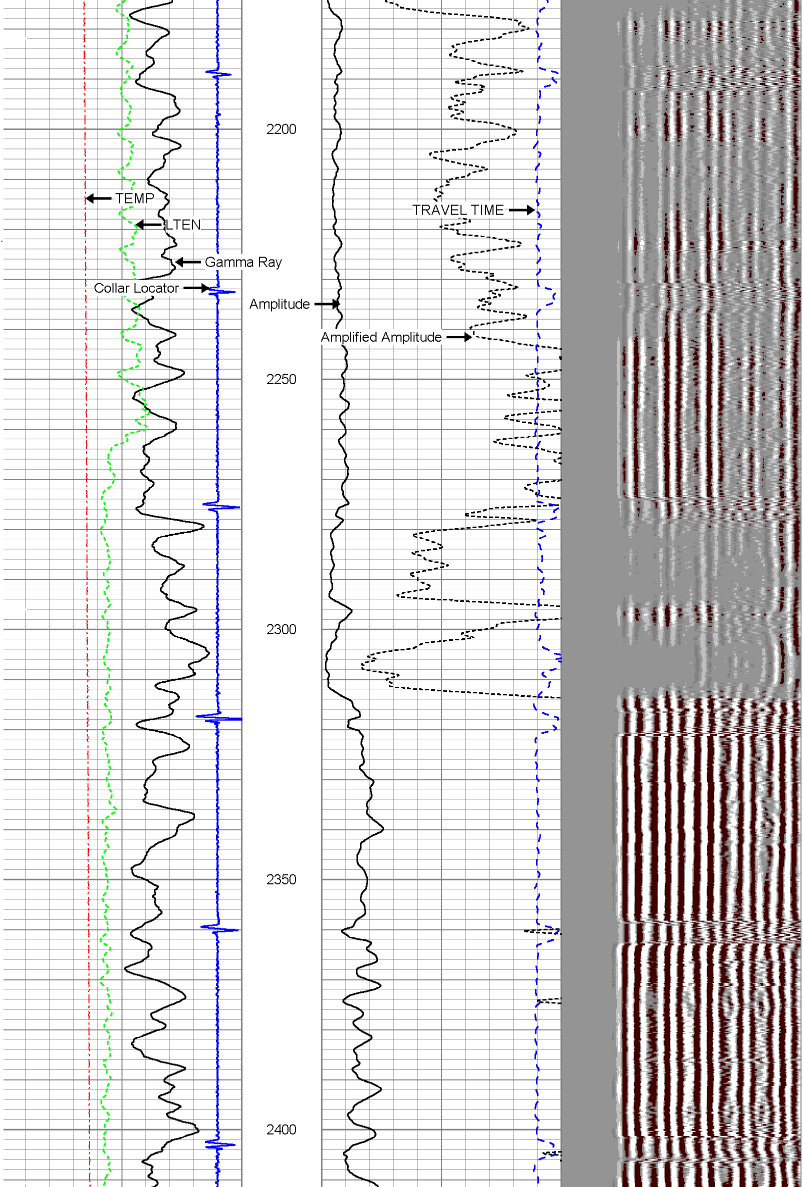


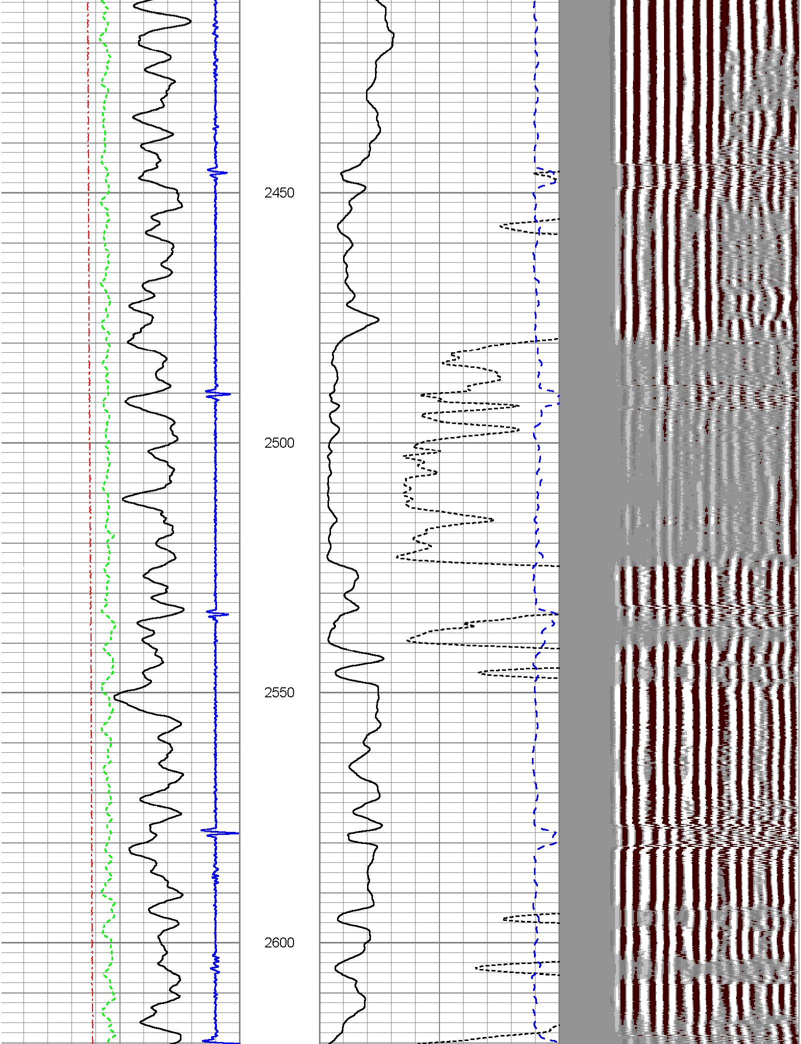


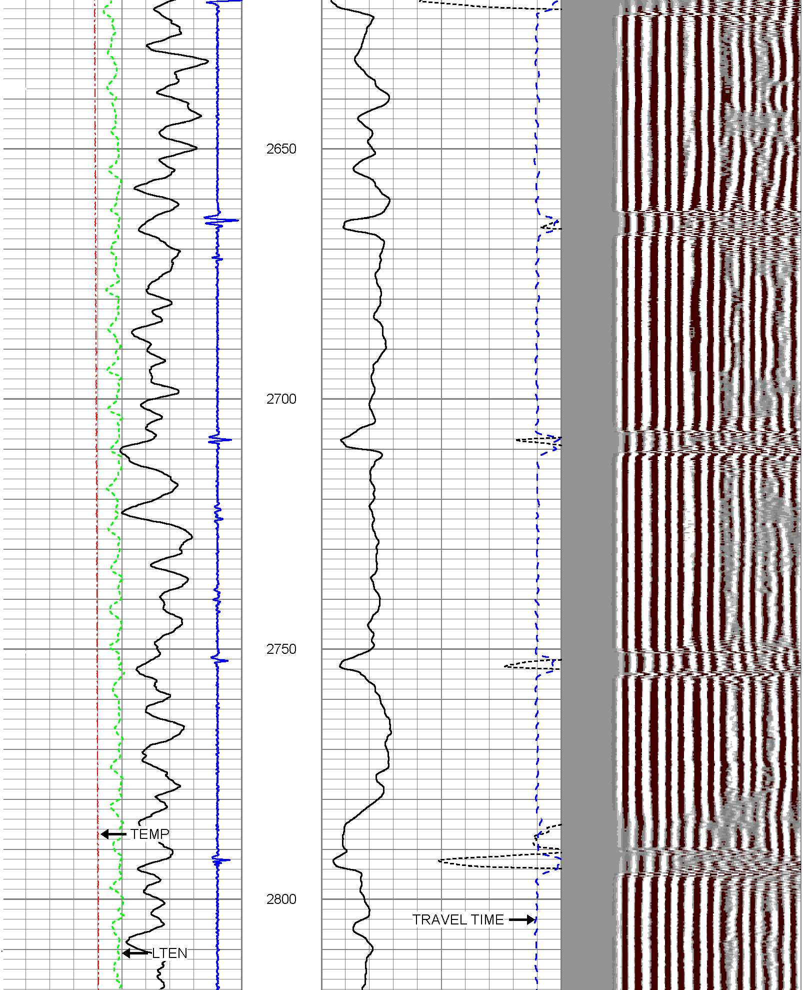


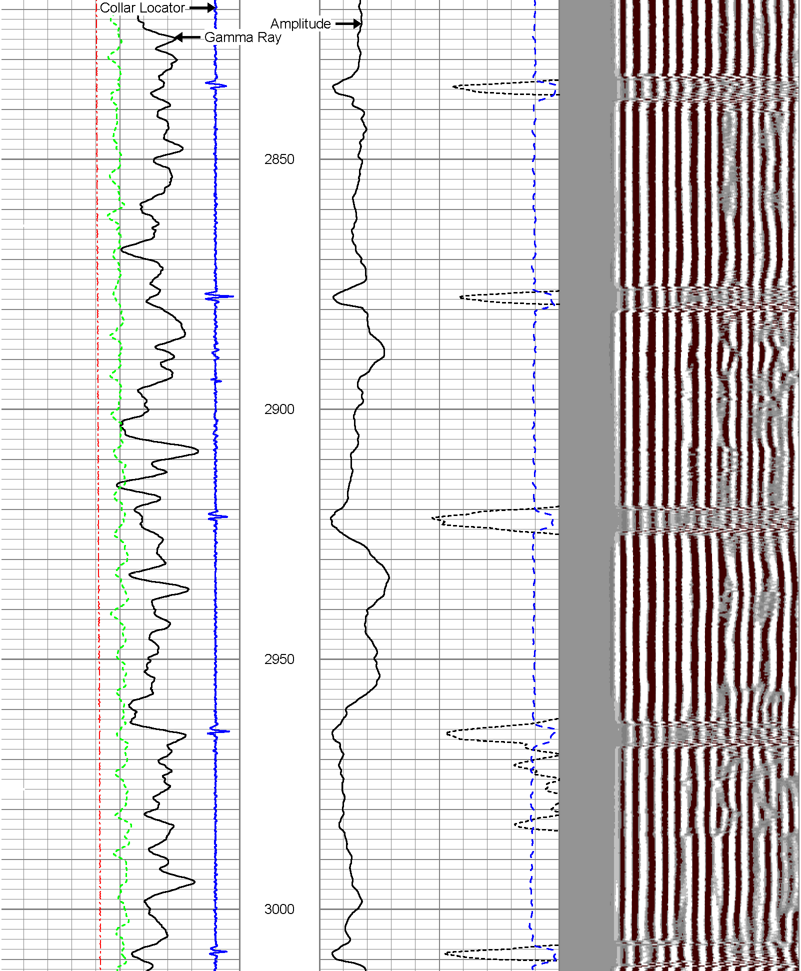


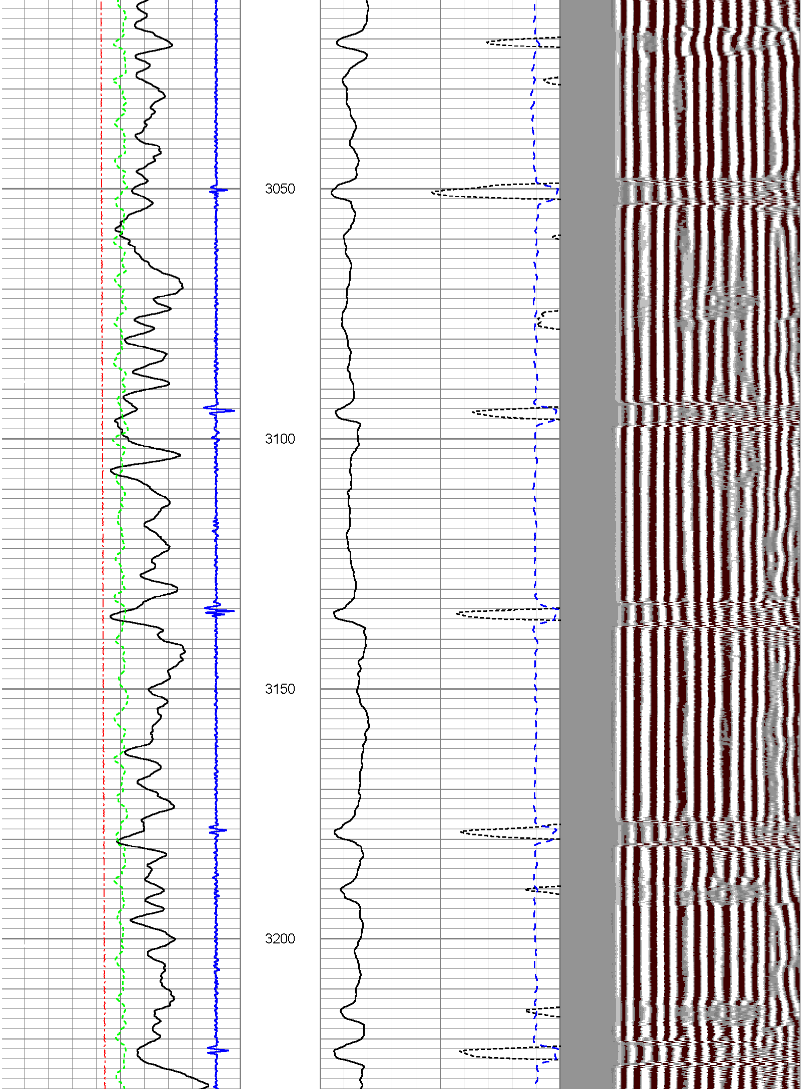


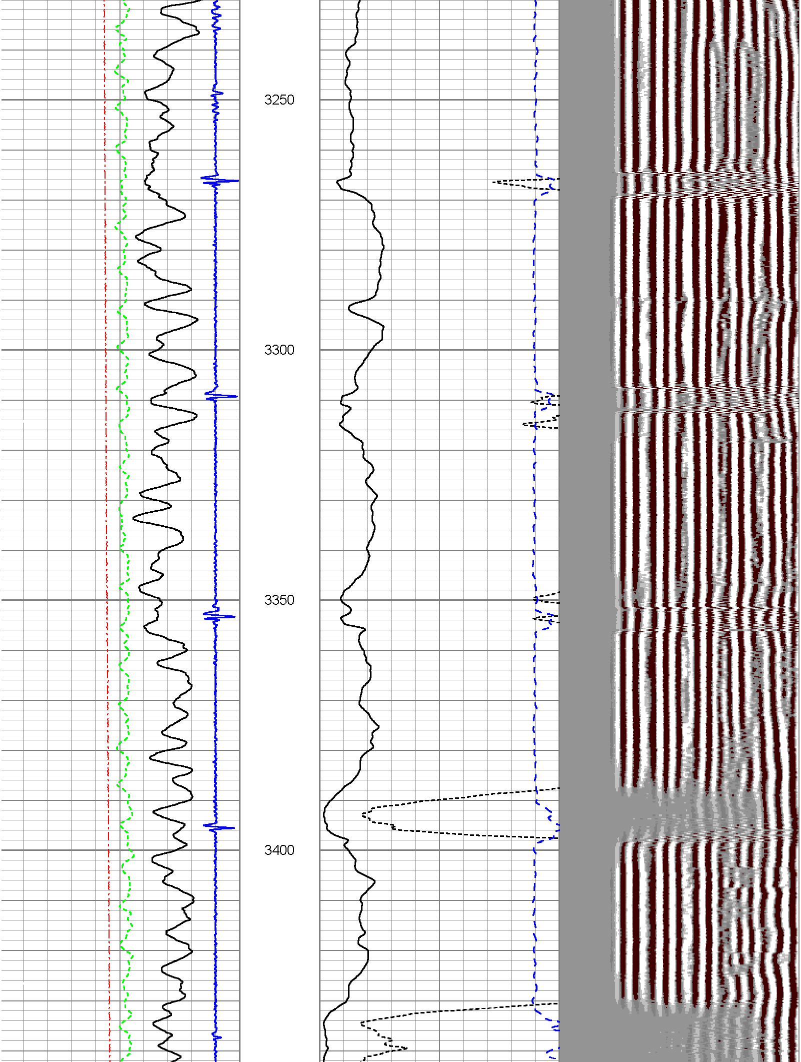


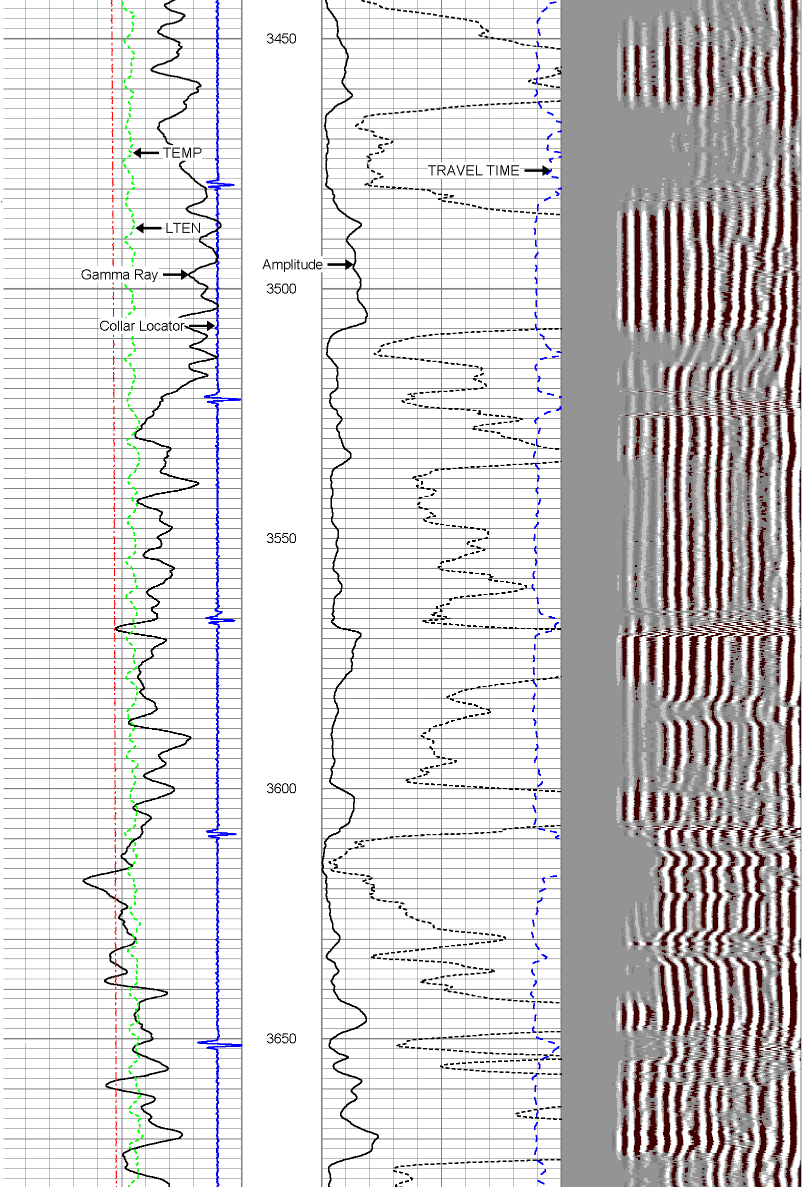


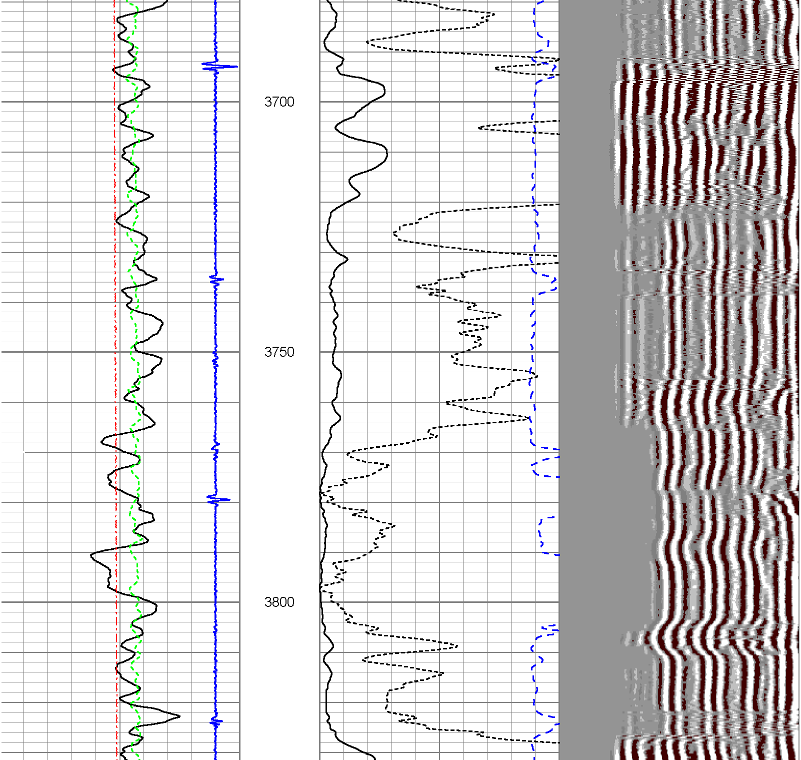












| | | | |
|---|---|---|---|
| 9 | Collar Locator | -1 | |
| 0 | Gamma Ray (GAPI) | 150 | |
| 0 | LTEN (lb) | 1500 | |
| 0 | TEMP (degF) | 300 | |
| 0 | Amplified Amplitude (mV) | 10 | 200 MSG 1200 |
| 0 | Amplitude (mV) | 100 | |
| 200 | TRAVEL TIME (usec) | 300 | |

**HALLIBURTON**

## MAIN PASS

SCALE: 5"=100'

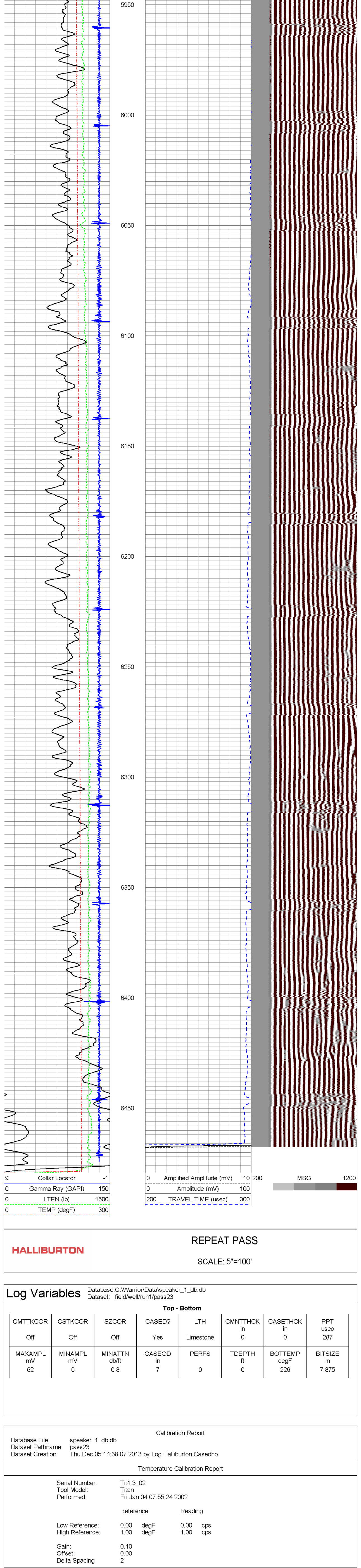
**HALLIBURTON**

## REPEAT PASS

SCALE: 5"=100'

Database File: speaker_1_db.db
Dataset Pathname: pass14
Presentation Format: 1cbl
Dataset Creation: Thu Dec 05 12:46:29 2013 by Log Halliburton Casedho
Charted by: Depth in Feet scaled 1:240

| | | | |
|---|---|---|---|
| 9 | Collar Locator | -1 | |
| 0 | Gamma Ray (GAPI) | 150 | |
| 0 | LTEN (lb) | 1500 | |
| 0 | TEMP (degF) | 300 | |
| 0 | Amplified Amplitude (mV) | 10 | 200 MSG 1200 |
| 0 | Amplitude (mV) | 100 | |
| 200 | TRAVEL TIME (usec) | 300 | |



| | | | |
|---|---|---|---|
| 9 | Collar Locator | -1 | |
| 0 | Gamma Ray (GAPI) | 150 | |
| 0 | LTEN (lb) | 1500 | |
| 0 | TEMP (degF) | 300 | |
| 0 | Amplified Amplitude (mV) | 10 | 200 MSG 1200 |
| 0 | Amplitude (mV) | 100 | |
| 200 | TRAVEL TIME (usec) | 300 | |

**HALLIBURTON**

## REPEAT PASS

SCALE: 5"=100'

## Log Variables

Database:C:\Warrior\Data\speaker_1_db.db
Dataset: field/well/run1/pass23

### Top - Bottom

| CMTTKCOR | CSTKCOR | SZCOR | CASED? | LTH | CMNTTHCK in | CASETHCK in | PPT usec |
|---|---|---|---|---|---|---|---|
| Off | Off | Off | Yes | Limestone | 0 | 0 | 287 |
| MAXAMPL mV | MINAMPL mV | MINATTN db/ft | CASEOD in | PERFS | TDEPTH ft | BOTTEMP degF | BITSIZE in |
| 62 | 0 | 0.8 | 7 | 0 | 0 | 226 | 7.875 |

### Calibration Report

Database File: speaker_1_db.db
Dataset Pathname: pass23
Dataset Creation: Thu Dec 05 14:38:07 2013 by Log Halliburton Casedho

#### Temperature Calibration Report

Serial Number: Tit1.3_02
Tool Model: Titan
Performed: Fri Jan 04 07:55:24 2002

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

Gain: 0.10
Offset: 0.00
Delta Spacing 2

#### Gamma Ray Calibration Report

Type / Serial: Probe / 275

| | Counts/Sec. | Gain | Offset | Jig | Units |
|---|---|---|---|---|---|
| SHOP CALIBRATION | Thu Dec 05 10:43:32 2013 | | | | |
| Background | 54.3 | | | | cps |
| Calibrator | 258.0 | | | | cps |
| | | 1.1836 | | | GAPI/cps |
| PRIMARY VERIFICATION | Thu Dec 05 10:48:53 2013 | | | | |
| Background | 68.1 | | | | cps |
| Calibrator | 305.5 | | | | cps |
| Difference | | | | 237.3 | GAPI |
| BEFORE SURVEY VERIFICATION | Thu Dec 05 10:54:51 2013 | | | | |
| Background | 69.1 | | | | cps |
| Calibrator | 321.7 | | | | cps |
| Difference | | | | 252.6 | GAPI |
| AFTER SURVEY VERIFICATION | | | | | |
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

#### Cement Bond Log Calibration Report

Serial Number: 275
Tool Model: Probe
Performed: Thu Dec 05 11:32:43 2013

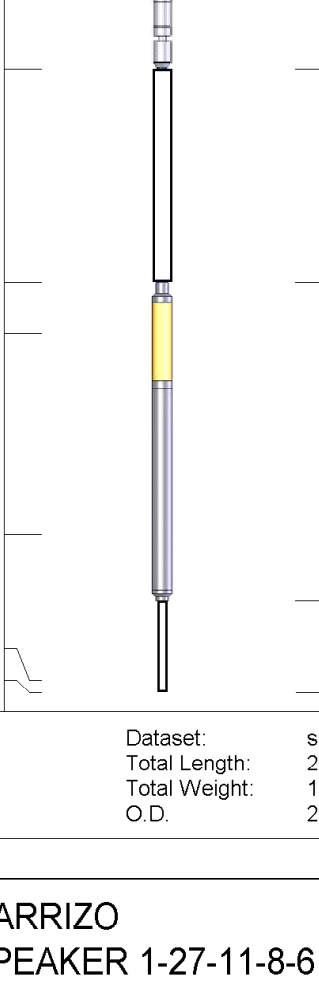
Depth: 166.135 ft
Casing Diameter: 5.5 in

| | 3' Spacing | 5' Spacing | |
|---|---|---|---|
| Signal Zero: | 0.25 | 0.25 | mV |
| Calibrated Amplitude: | 62 | 62 | mV |
| Reading at Signal Zero: | 0.00800781 | 0.00456543 | V |
| Reading in Free Pipe: | 0.673413 | 0.657471 | V |
| Gain: | 92.8006 | 94.5773 | |
| Offset: | -0.49313 | -0.181786 | |

### Sensor Report

Database File: speaker_1_db.db
Dataset Pathname: pass23
Dataset Creation: Thu Dec 05 14:38:07 2013 by Log Halliburton Casedho

| Sensor Name | Offset (ft) |
|---|---|
| WVF3 | 12.65 |
| WVF5 | 11.65 |
| CCL | 4.89 |
| GR | 2.15 |
| TEMP | 0.17 |
| LLMTEN | 0 |
| Telemetry | 0 |

| Sensor | Offset (ft) | Schematic | Description | Len (ft) | OD (in) | Wt (lb) |
|---|---|---|---|---|---|---|
| STNDCH<br>CENT | 21.09<br>20.26 |  | 1_CABLEHEAD<br>1"OD CABLE HEAD | 0.83 | 1.00 | 3.00 |
| | | | Probe_275<br>Probe 2 3/4 Centralizer | 2.88 | 2.75 | 35.00 |
| WVF3<br>WVF5 | 12.65<br>11.65 | | CBL-Probe (275)<br>Probe 2.75" Dual Receiver Bond | 8.92 | 2.75 | 60.00 |
| CENT | 8.46 | | Probe_275<br>Probe 2 3/4 Centralizer | 2.88 | 2.75 | 35.00 |
| GR<br>CCL<br>GR | 5.58<br>4.89<br>2.15 | | GR-Probe (275)<br>Probe 2.75" 4 Channel Pulse | 4.33 | 2.75 | 30.00 |
| TEMP<br>LLMTEN | 0.17<br>0.00 | | TEMP-Titan (Tit1.3_02)<br>Titan Temp 1.3875 | 1.25 | 1.39 | 10.00 |

Dataset: speaker_1_db.db: field/well/run1/pass23
Total Length: 21.09 ft
Total Weight: 173.00 lb
O.D. 2.75 in

| | |
|---|---|
| Company | CARRIZO |
| Well | SPEAKER 1-27-11-8-61 |
| Field | WILDCAT |
| County | WELD |
| State | CO |

**HALLIBURTON**

## CEMENT BOND LOG