**NABORS**
**COMPLETION & PRODUCTION SERVICES CO.**

# GAMMA RAY CCL
# CEMENT BOND SECTOR VDL

| | |
|---|---|
| Company | NOBLE ENERGY INC. |
| Well | WELLS RANCH AE20-68HN |
| Field | WATTENBERG |
| County | WELD |
| State | COLORADO |

Company NOBLE ENERGY INC.
Well WELLS RANCH AE20-68HN
Field WATTENBERG
County WELD State COLORADO

Location: API #: 0512337216
BHL: 660' FNL & 535' FEL
NW/NW
SEC 20 TWP 6N RGE 62W

Other Services

Permanent Datum GL Elevation 4840
Log Measured From KB
Drilling Measured From KB

Elevation
K.B. 4870
D.F.
G.L. 4840

| | | | |
|---|---|---|---|
| Date | DECEMBER 10, 2013 | | |
| Run Number | ONE | | |
| Depth Driller | 10876 | | |
| Depth Logger | 6880 | | |
| Bottom Logged Interval | 6880 | | |
| Top Log Interval | SURFACE | | |
| Open Hole Size | 8-3/4 | | |
| Type Fluid | WATER | | |
| Density / Viscosity | N/A | | |
| Max. Recorded Temp. | 223°F | | |
| Estimated Cement Top | 350 | | |
| Time Well Ready | PORTABLE MAST | | |
| Time Logger on Bottom | 2-3/4 PROBE 101020/785 | | |
| Equipment Number | 4838 | | |
| Location | 45 | | |
| Recorded By | GREG NOLAN | | |
| Witnessed By | BILL MASNFIELD | | |

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

| Casing Record | Size | Wgt/Ft | Top | Bottom |
|---|---|---|---|---|
| Surface String | 9-5/8 | 36# J-55 | 30 | 990.4 |
| Prot. String | | | | |
| Production String | 7 | 26# P-110 IC | 30 | 7009.8 |
| Liner | 4-1/2 | 11.6# HCP-110 | 6871.2 | 10876 |

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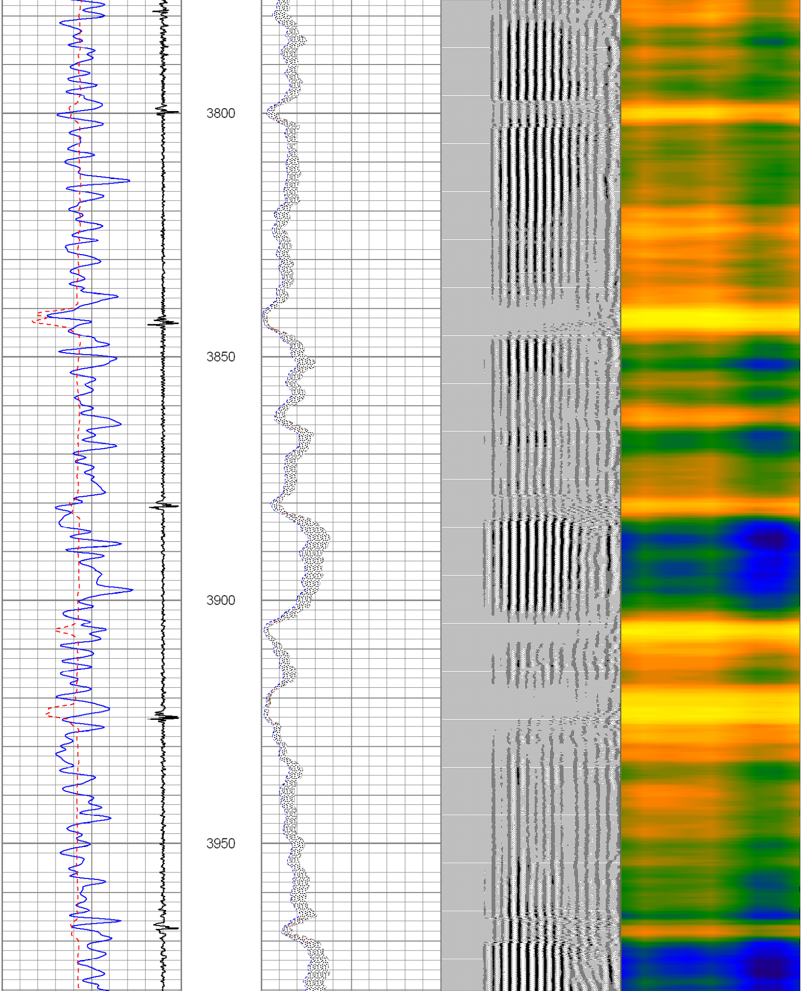
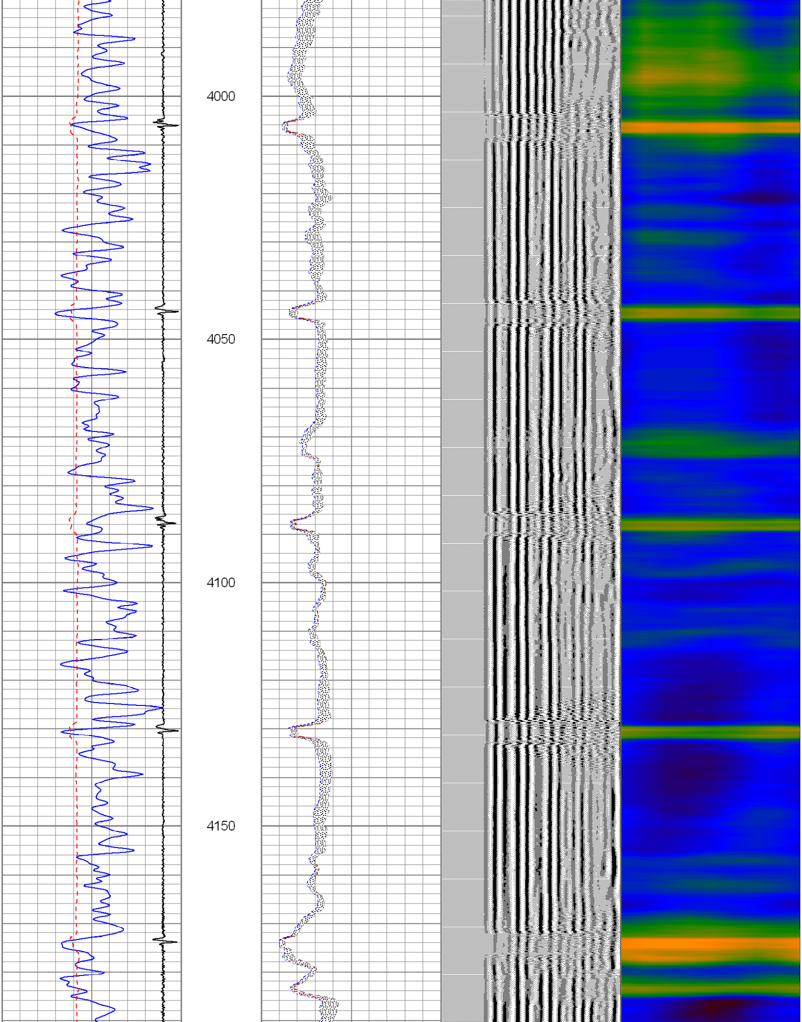
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

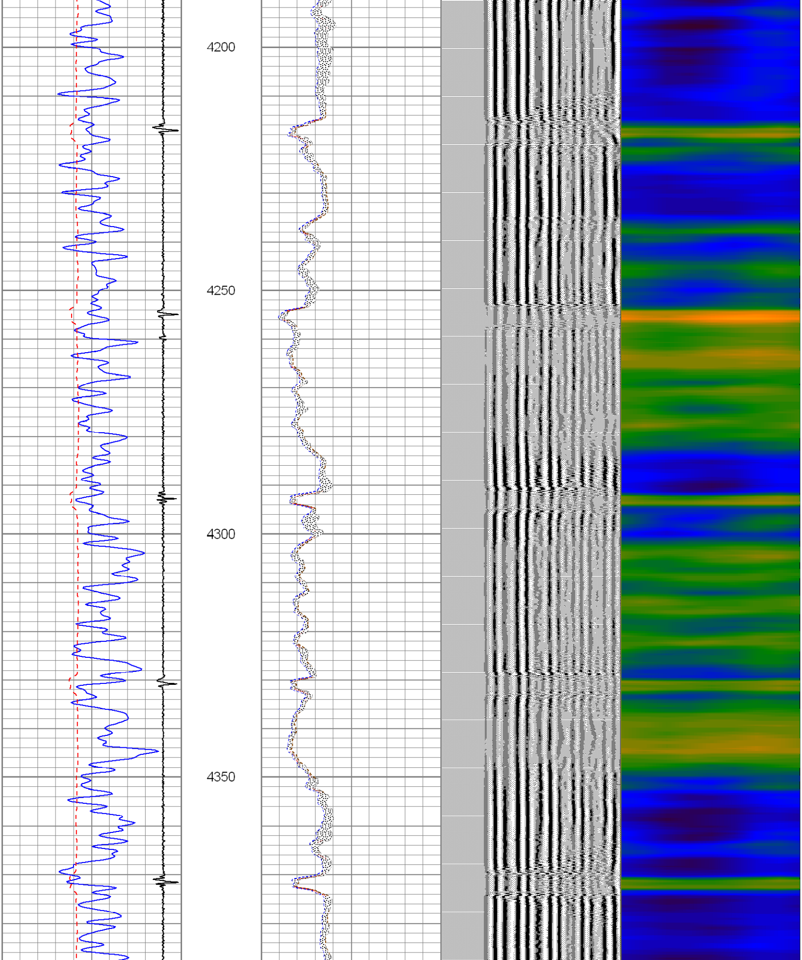
Comments

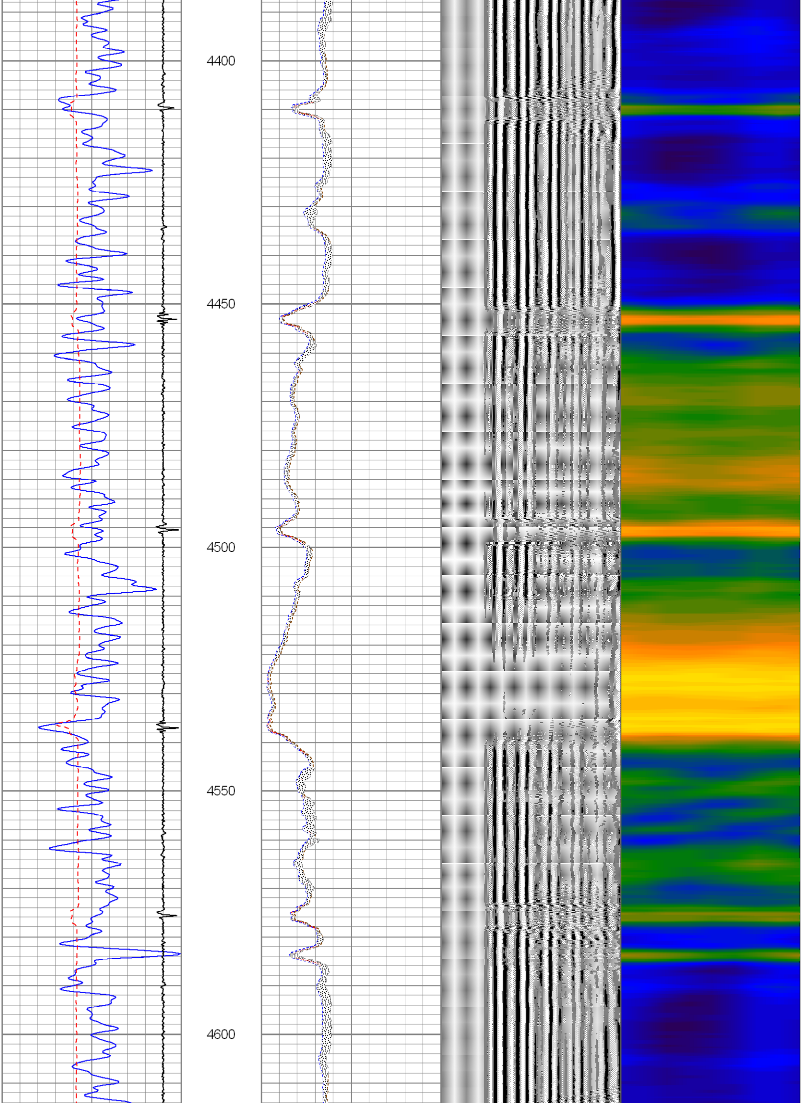
THANK YOU FOR CHOOSING NCPS!!!!!
LOG NOT CORRELATED
WCR 67 & WCR 68, E.2, S.25, E3, S.5, E.8, N INTO
THIRD WELL FROM THE NORTH OF AN 8 WELL PAD

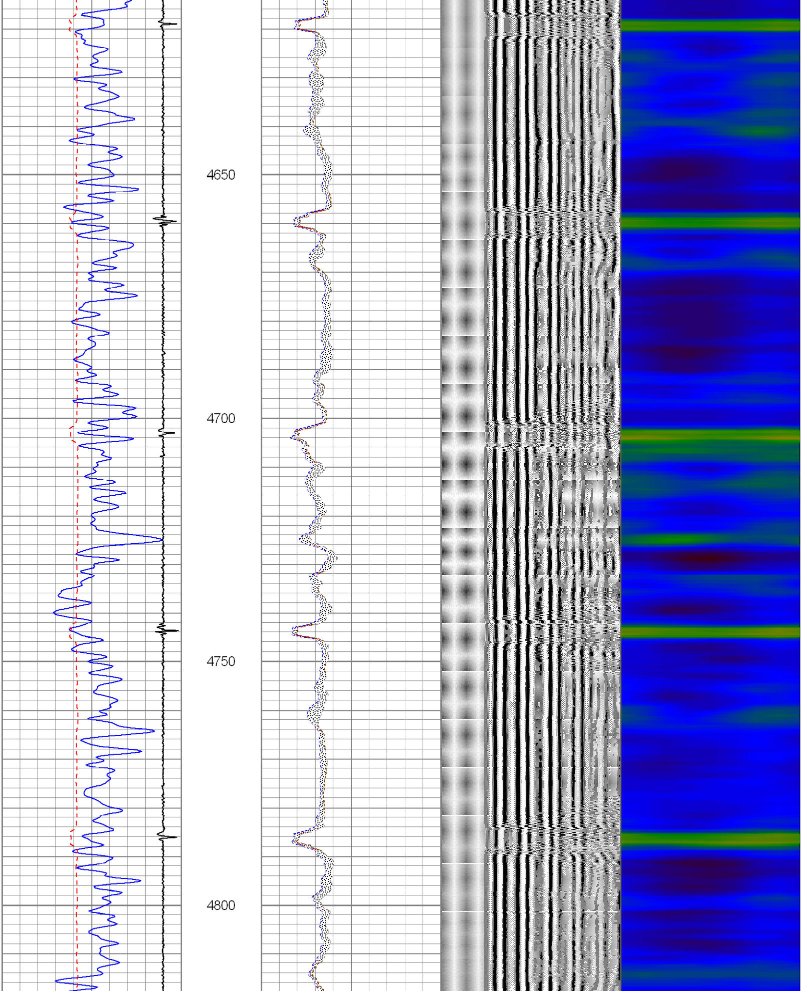
| | |
|---|---|
| Database File: | cbl noble wells ranch ae20-68hn.db |
| Dataset Pathname: | pass4 |
| Presentation Format: | sector2 |
| Dataset Creation: | Tue Dec 10 16:49:42 2013 by Log SCH 120430 |
| Charted by: | Depth in Feet scaled 1:240 |

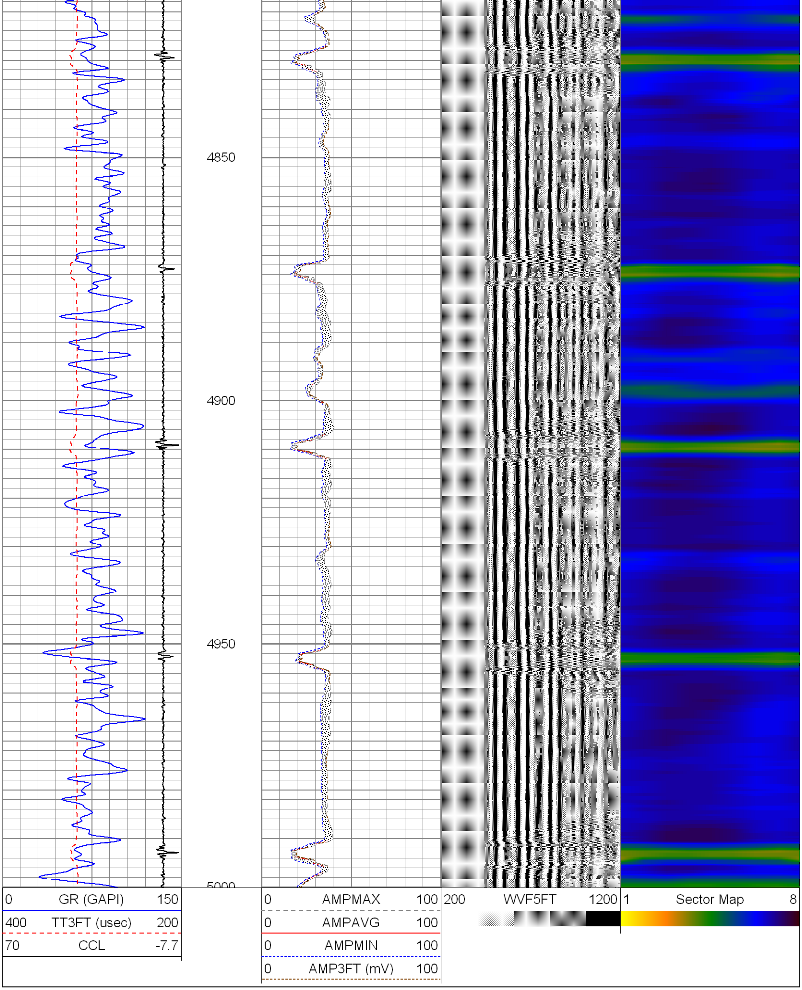




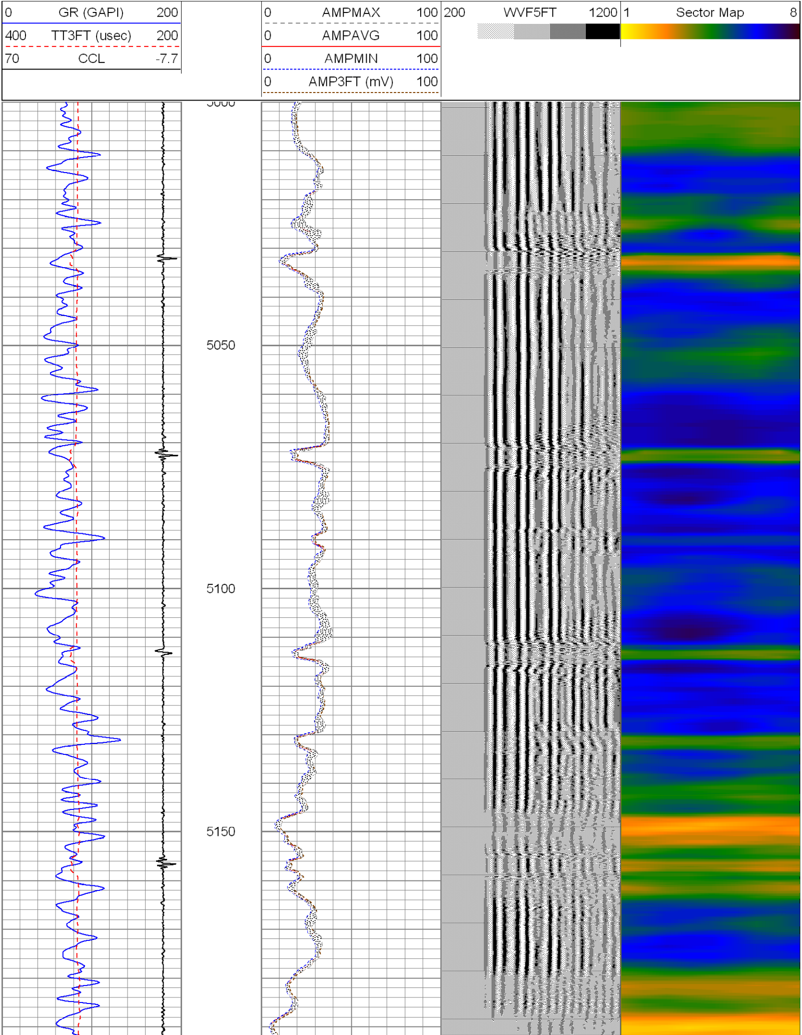


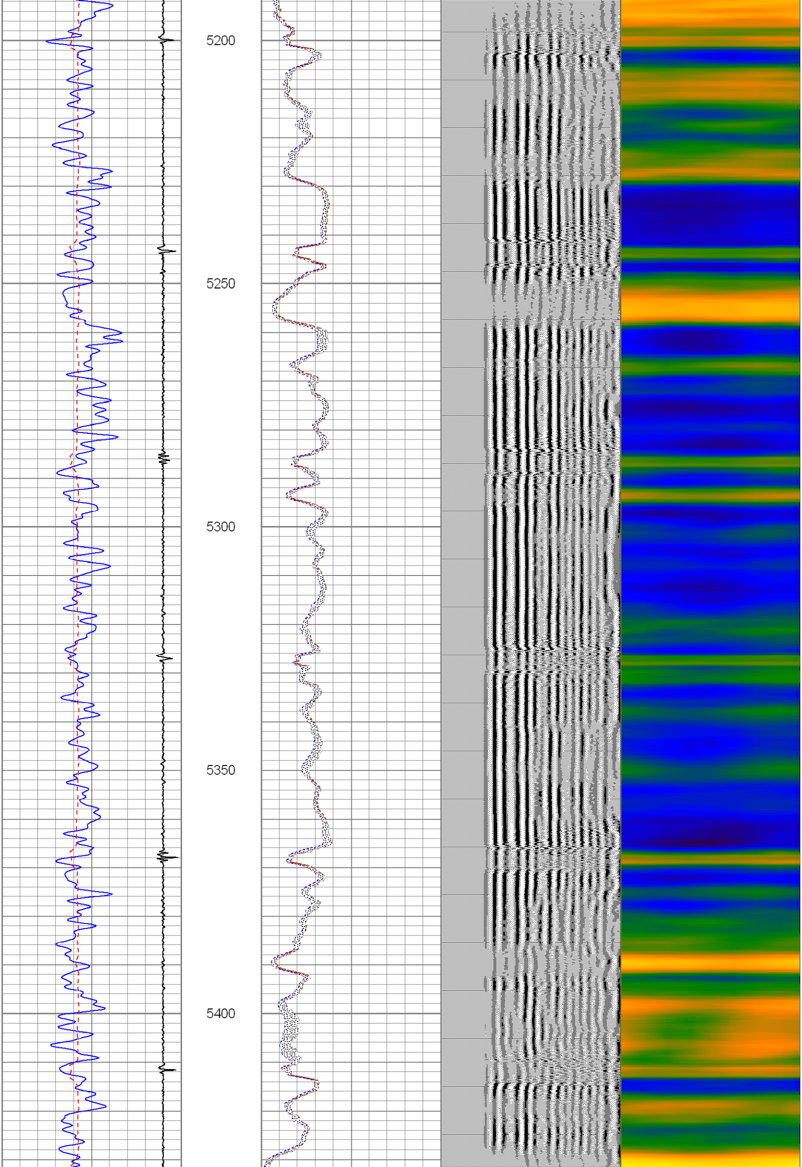


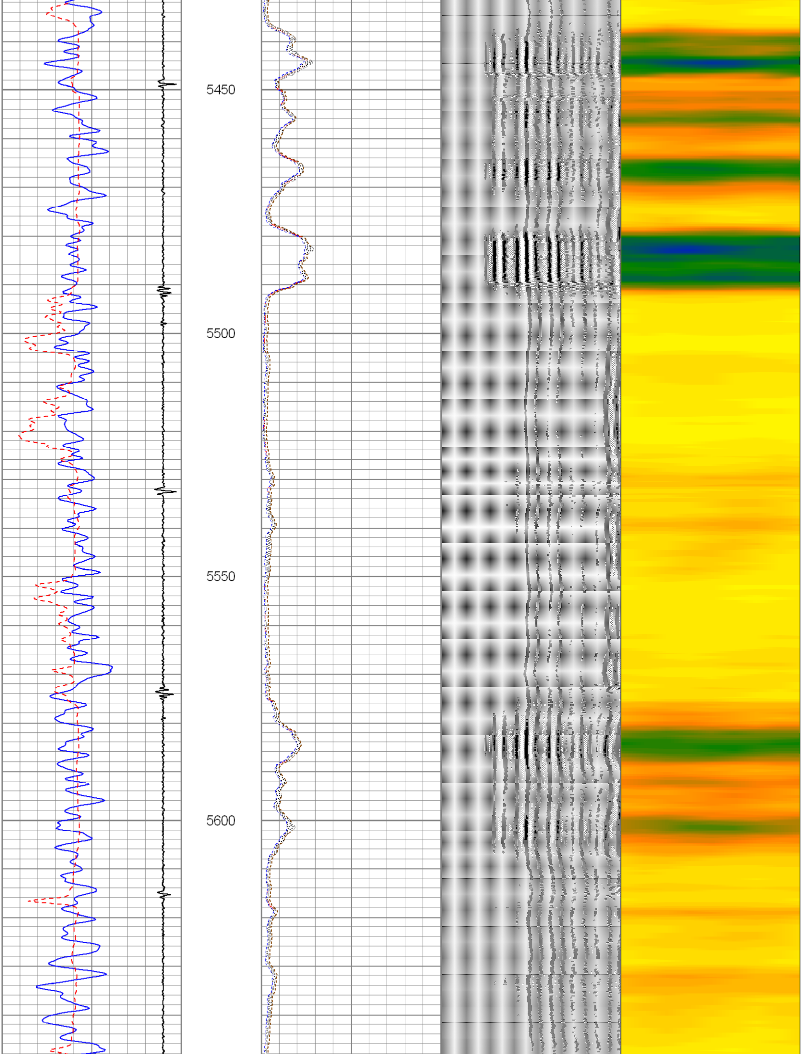


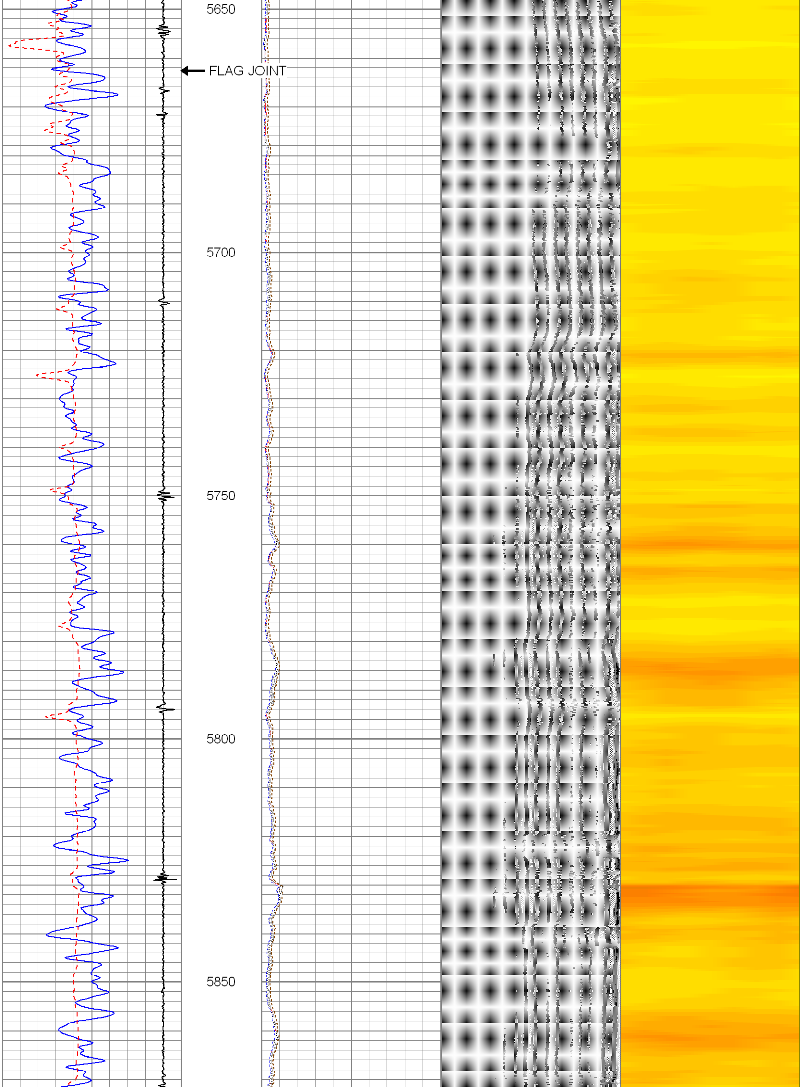


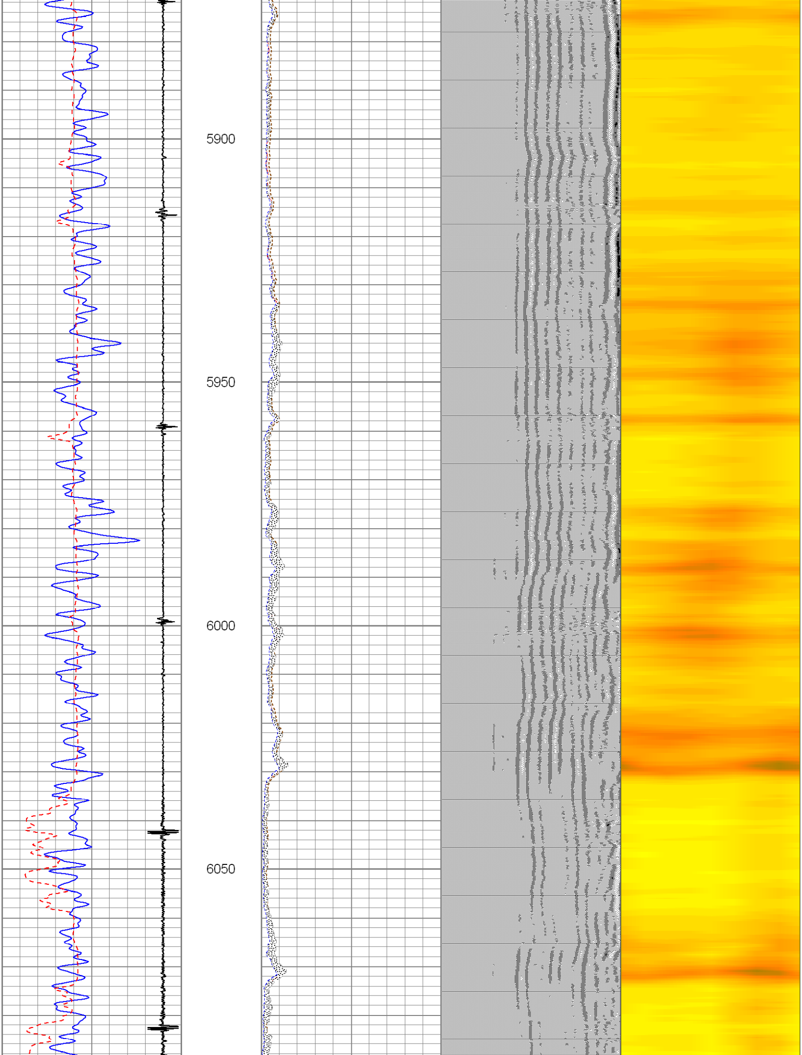
| | |
|---|---|
| Database File: | cbl noble wells ranch ae20-68hn.db |
| Dataset Pathname: | pass3 |
| Presentation Format: | sector2 |
| Dataset Creation: | Tue Dec 10 16:35:35 2013 by Log SCH 120430 |
| Charted by: | Depth in Feet scaled 1:240 |

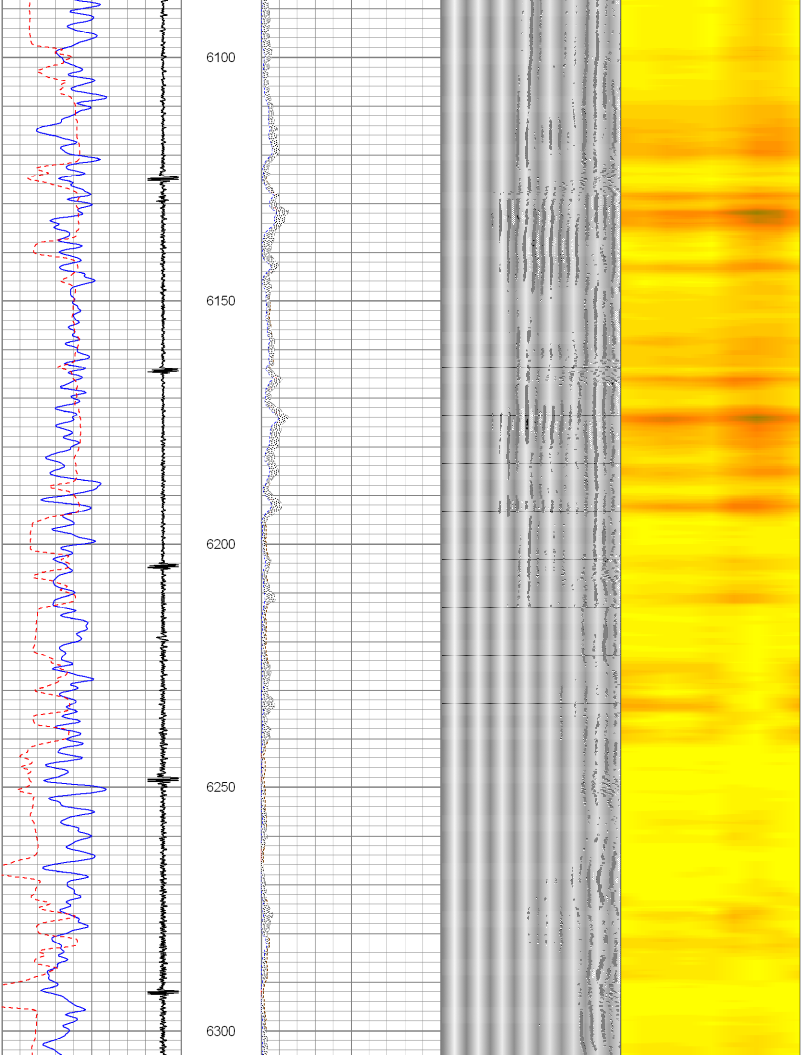


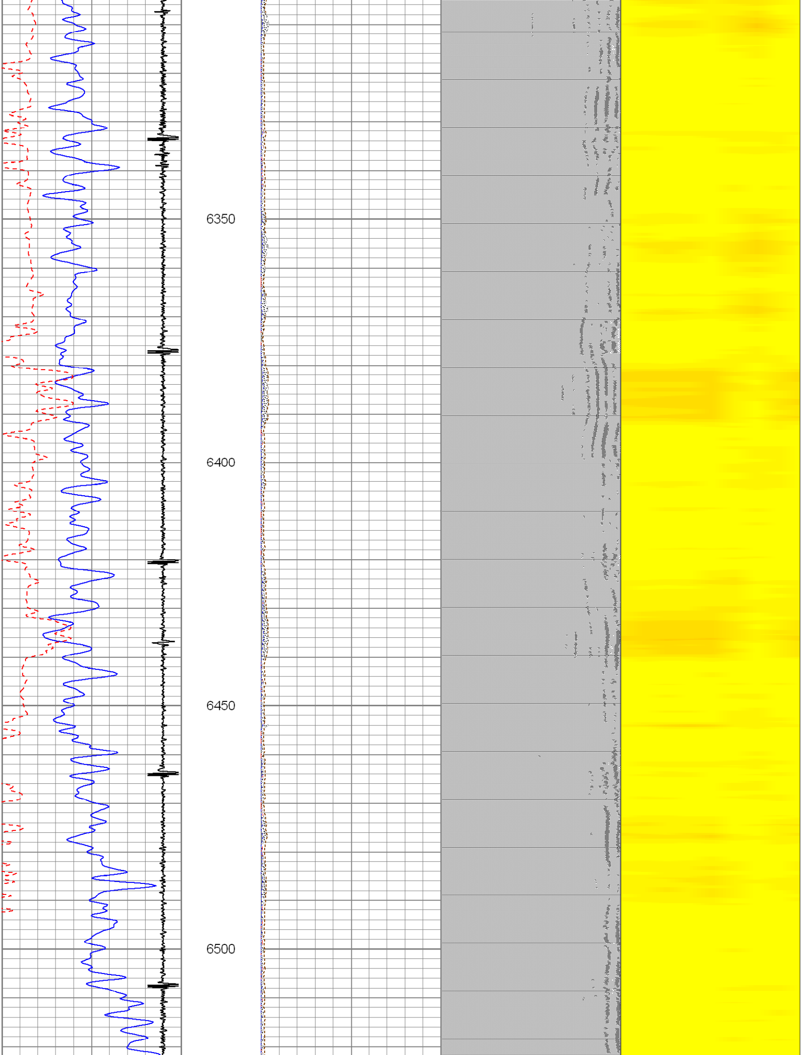


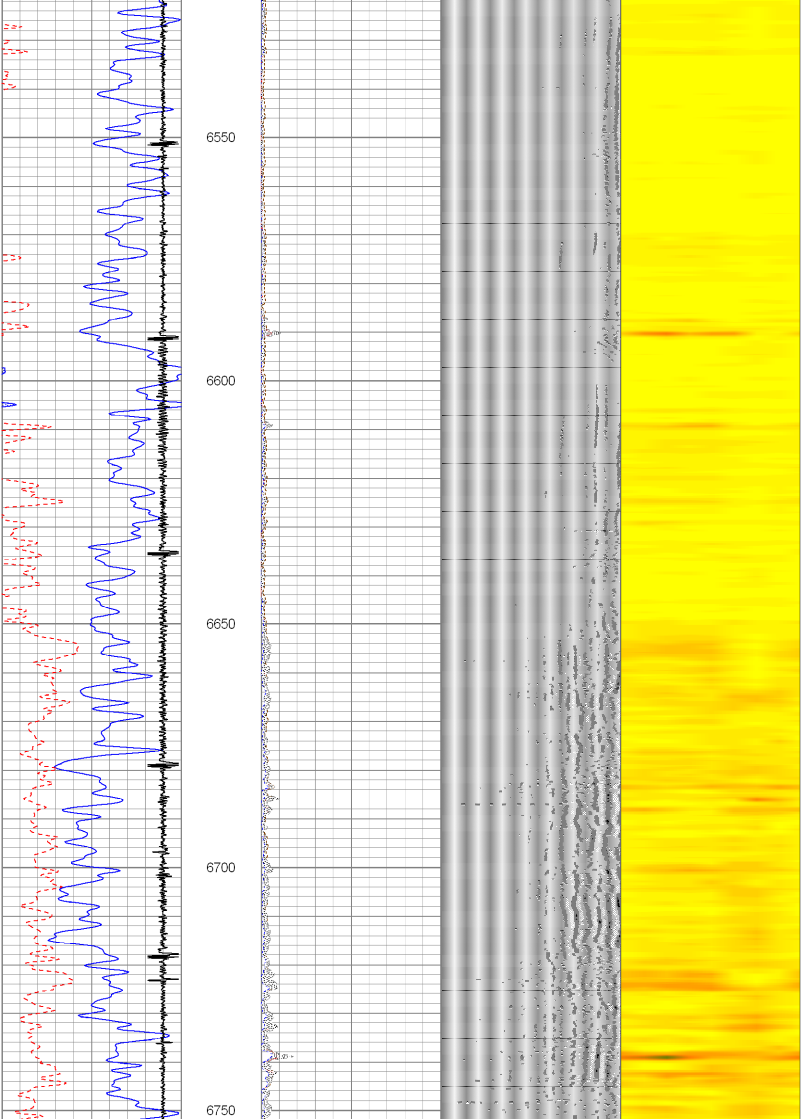


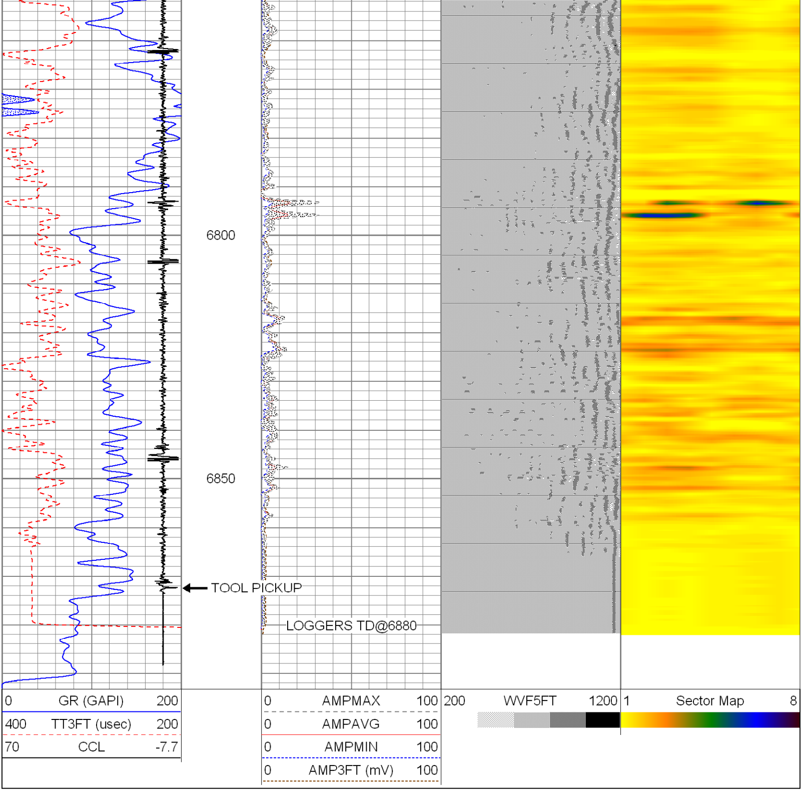












| Calibration Report | |
|---|---|
| Database File: | cbl noble wells ranch ae20-68hn.db |
| Dataset Pathname: | pass3 |
| Dataset Creation: | Tue Dec 10 16:35:35 2013 by Log SCH 120430 |

Gamma Ray Calibration Report

Type / Serial: Probe275dig / 110785

## SHOP CALIBRATION

Fri Nov 08 09:38:30 2013

| | Counts/Sec. | Gain | Offset | Jig | Units |
|---|---|---|---|---|---|
| Background | 0.0 | | | | cps |
| Calibrator | 1.0 | | | | cps |
| | | 0.4400 | | | GAPI/cps |

## PRIMARY VERIFICATION

| | Counts/Sec. | Gain | Offset | Jig | Units |
|---|---|---|---|---|---|
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

## BEFORE SURVEY VERIFICATION

| | Counts/Sec. | Gain | Offset | Jig | Units |
|---|---|---|---|---|---|
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

## AFTER SURVEY VERIFICATION

| | Counts/Sec. | Gain | Offset | Jig | Units |
|---|---|---|---|---|---|
| Background | 0.0 | | | | cps |
| Calibrator | 0.0 | | | | cps |
| Difference | | | | 0.0 | GAPI |

## Segmented Cement Bond Log Calibration Report

| | | |
|---|---|---|
| Serial Number: | 101020 | |
| Tool Model: | Probe | |
| Calibration Casing Diameter: | 7.000 | in |
| Calibration Depth: | 197.142 | ft |

Master Calibration, performed Tue Dec 10 16:17:43 2013:

| | Raw (v) | | Calibrated (mv) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.007 | 1.037 | 1.500 | 62.165 | 58.915 | 1.068 |
| CAL | 0.007 | 1.209 | | | | |
| 5' | 0.007 | 1.150 | 1.500 | 62.165 | 53.108 | 1.104 |
| SUM | | | | | | |
| S1 | 0.007 | 1.234 | 0.000 | 62.165 | 50.687 | -0.373 |
| S2 | 0.007 | 1.136 | 0.000 | 62.165 | 55.071 | -0.407 |
| S3 | 0.007 | 1.022 | 0.000 | 62.165 | 61.293 | -0.456 |
| S4 | 0.007 | 0.914 | 0.000 | 62.165 | 68.595 | -0.502 |
| S5 | 0.007 | 0.832 | 0.000 | 62.165 | 75.371 | -0.558 |
| S6 | 0.007 | 0.865 | 0.000 | 62.165 | 72.484 | -0.527 |
| S7 | 0.007 | 1.053 | 0.000 | 62.165 | 59.442 | -0.446 |
| S8 | 0.007 | 1.223 | 0.000 | 62.165 | 51.143 | -0.375 |

Internal Reference Calibration, performed Fri Jan 13 14:30:16 2012:

| | Raw (v) | | Calibrated (v) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | 0.007 | 1.209 | 1.000 | 0.000 |

Air Zero Calibration, performed Tue Dec 10 14:53:01 2013:

| | 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 |