Casedhole Solutions

# Gamma Ray / CCL
# Cement Bond / VDL

Company: Noble Energy Inc.
Well: Antholz PC AB6-16
Field: Wattenberg
County: Weld
State: Colorado

Company Noble Energy Inc.
Well Antholz PC AB6-16
Field Wattenberg
County Weld State Colorado
Location: API #: 05-123-32110
690' FSL & 690' FEL
SE / SE
SEC 6 TWP 7N RGE 64W

Other Services

Permanent Datum GL Elevation 4992'
Log Measured From KB
Drilling Measured From KB

Elevation
K.B. 5008'
D.F. 5007'
G.L. 4992'

| | |
|---|---|
| Date | February 10, 2016 |
| Run Number | One |
| Depth Driller | 7440' |
| Depth Logger | 2700' |
| Bottom Logged Interval | 2700' |
| Top Log Interval | Surface |
| Casing Size | 4 1/2 |
| Type Fluid | Water |
| Max. Recorded Temp. | NA |
| Estimated Cement Top | 1870' |
| Time Well Ready | 7:00am |
| Time Logger On Bottom | 7:15am |
| Unit Number | 92-3376 |
| Tool Size / ID Number | 2 3/4 Tecko |
| Location | Sterling |
| Recorded By | Adam Frank |
| Witnessed By | Jake Eicher |

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

| Casing Record | Size | Wgt/Ft | Top | Bottom |
|---|---|---|---|---|
| Surface String | 8 5/8 | 24# | Surface | 852' |
| Prot. String | | | | |
| Production String | 4 1/2 | 11.6# | Surface | 7432' |
| Liner | | | | |

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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 using Casedhole Solutions!

| Sensor | Offset (ft) | Description | Len (ft) | OD (in) | Wt (lb) |
|---|---|---|---|---|---|
| | | CHD-STNDRD (1)<br>Standard Cable Head | 1.00 | 1.69 | 10.00 |
| | | CENT-TEKCO (234CENT-1)<br>2 3/4" Centralizer | 2.88 | 2.75 | 10.00 |
| WVF3FT | 14.46 | SCBL-TEKCO (234B35C-8013)<br>tekco 2 3/4" SCBL tool | 9.06 | 2.75 | 102.00 |
| WVF5FT | 12.46 | | | | |
| WVFCAL | 9.63 | | | | |
| | | 1 | 2.88 | 2.00 | 8.00 |
| CCL | 5.60 | CCL-tekco (234CCL-169)<br>2 3/4" TEKCO Collar Locator | 1.83 | 2.75 | 10.00 |
| GR | 2.29 | GR-TekcoGR (234GR-328)<br>2 3/4" TEKCO Gamma Ray | 3.67 | 2.75 | 20.00 |
| | | 1<br>1.25" TEMP. PROBE | 1.25 | 1.25 | 1.00 |

Dataset: antholz pc ab6-16.db: field/well/run1/pass3
Total Length: 22.56 ft
Total Weight: 161.00 lb
O.D.: 2.75 in

Database File: antholz pc ab6-16.db
Dataset Pathname: pass3
Presentation Format: nuexbond
Dataset Creation: Wed Feb 10 07:46:30 2016 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0 | Gamma Ray (GAPI) | 150 | 0 | Amplified Amplitude (mV) | 30 | 200 | VDL | 1200 |
| 30 | CCL | -3.3 | 0 | Amplitude (mV) | 100 | | | |
| 400 | TT3 (usec) | 200 | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
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| 400 | TT3 (usec) | 200 | | | | | | |

## Calibration Report

Database File: antholz pc ab6-16.db
Dataset Pathname: pass3
Dataset Creation: Wed Feb 10 07:46:30 2016 by Log 7.0 B1

### Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | 234GR-328 | |
| Tool Model: | TekcoGR | |
| Performed: | Mon Apr 18 13:05:02 2011 | |
| Calibrator Value: | 1.0 | GAPI |
| Background Reading: | 0.0 | cps |
| Calibrator Reading: | 1.0 | cps |
| Sensitivity: | 0.8000 | GAPI/cps |

### Segmented Cement Bond Log Calibration Report

| | | |
|---|---|---|
| Serial Number: | 234B35C-8013 | |
| Tool Model: | TEKCO | |
| Calibration Casing Diameter: | 4.500 | in |
| Calibration Depth: | 176.117 | ft |

Master Calibration, performed Wed Feb 10 07:37:01 2016:

| | Raw (v) | | Calibrated (mv) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.006 | 2.473 | 1.500 | 81.196 | 32.312 | 1.303 |
| CAL | 0.007 | 0.855 | | | | |
| 5' | 0.005 | 2.327 | 1.500 | 81.196 | 34.328 | 1.321 |
| SUM | | | | | | |
| S1 | | | | | | |
| S2 | | | | | | |
| S3 | | | | | | |
| S4 | | | | | | |
| S5 | | | | | | |
| S6 | | | | | | |
| S7 | | | | | | |
| S8 | | | | | | |

Internal Reference Calibration, performed Wed Aug 03 12:27:14 2011:

| | Raw (v) | | Calibrated (v) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | 0.007 | 0.855 | 1.000 | 0.000 |

Air Zero Calibration, performed Wed Aug 03 12:21:32 2011:

| | Raw (v) | Calibrated (v) | Results |
|---|---|---|---|
| | Zero | Zero | Offset |
| 3' | 0.000 | 0.000 | 0.000 |
| 5' | 0.000 | 0.000 | 0.000 |
| SUM | | | |
| S1 | | | |
| S2 | | | |
| S3 | | | |
| S4 | | | |
| S5 | | | |
| S6 | | | |
| S7 | | | |
| S8 | | | |