# Radial Cement Bond Log With VDL / CCL / GR And Cement Map

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Pioneer Energy Services

Company Anadarko Petroleum Corporation
Well NRC 4C-8HZ
Field Wattenberg
County Weld State Colorado

Location: API #: 05-123-38411
SHL: 350'FSL & 690'FWL
SEC 8 TWP 1N RGE 67W

Other Services
JB/GR
Caliper
Set Plug

Permanent Datum Ground Level Elevation 5049'
Log Measured From Kelly Bushing 25' A.P.D.
Drilling Measured From Kelly Bushing

Elevation
K.B. 5074'
D.F. 5073'
G.L. 5049'

| | |
|---|---|
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| | |
|---|---|
| Date | 23-Mar-2014 |
| Run Number | Three |
| Depth Driller | 12,951' |
| Depth Logger | 6561' |
| Bottom Logged Interval | 6559' |
| Top Log Interval | Surface |
| Open Hole Size | 8.75" |
| Type Fluid | Water |
| Density / Viscosity | 8.34 |
| Max. Recorded Temp. | See Caliper Log |
| Estimated Cement Top | 216' |
| Time Well Ready | 11:50 |
| Time Logger on Bottom | 12:15 |
| Equipment Number | 96 |
| Location | Ft. Morgan |
| Recorded By | Bruce Miller |
| Witnessed By | Mr. Edgar Chavez |

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

| Casing Record | Size | Wgt/Ft | Top | Bottom |
|---|---|---|---|---|
| Surface String | 9.625" | 36# | Surface | 1248' |
| Prot. String | | | | |
| Production String | 7.0" | 26# | Surface | 8177' |
| Liner | 4.5" | 11.6# | 6485' | 12,931' |
| See Remarks | | | | |

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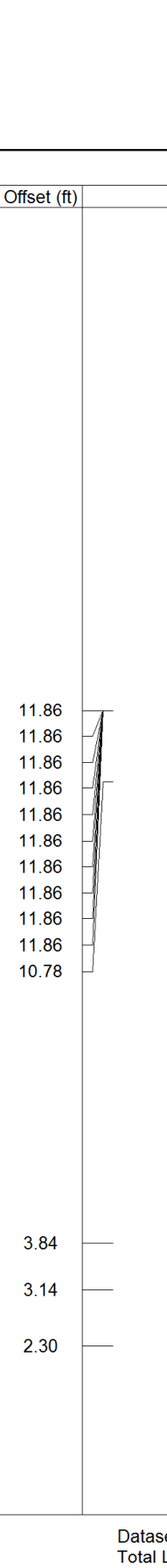
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

Liner Top Was Found At 6488' On Log.

K.O.P. @ 6500'

| Sensor | Offset (ft) | Schematic | Description | Len (ft) | OD (in) | Wt (lb) |
|---|---|---|---|---|---|---|
| | |  | PTS275 | 2.83 | 2.75 | |
| WVF3FT<br>WVFCAL<br>WVFS1<br>WVFS2<br>WVFS3<br>WVFS4<br>WVFS5<br>WVFS6<br>WVFS7<br>WVFS8<br>WVF5FT | 11.86<br>11.86<br>11.86<br>11.86<br>11.86<br>11.86<br>11.86<br>11.86<br>11.86<br>11.86<br>10.78 | | RBT-Probe (Base)<br>Probe Radii Bond Tool with Digital Telemetry | 8.92 | 2.75 | 90.00 |
| | | | PTS275 | 2.83 | 2.75 | |
| CCL<br>TEMP<br>GR | 3.84<br>3.14<br>2.30 | | GCT-GRCCLTEMP (130608)<br>Probe GCT | 4.69 | 2.75 | 100.00 |

Dataset: anadarko_nrc_4c-8hz_jbgr_logs.db: field/well/run3/pass3
Total Length: 19.27 ft
Total Weight: 190.00 lb
O.D. 2.75 in

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## Main Pass

Logged With 2200 PSI Applied At Surface

Database File: anadarko_nrc_4c-8hz_jbgr_logs.db
Dataset Pathname: run3/pass3
Presentation Format: scbl02
Dataset Creation: Sun Mar 23 13:41:10 2014 by Calc SCH 120430
Charted by: Depth in Feet scaled 1:240

| -9 CCL 1 | 0 GR (GAPI) 200 | 0 AMP (mV) 100 | 0 AMPAVG 150 | 200 VDL 1200 | 1 SECTOR MAP 8 |
|---|---|---|---|---|---|
| | TT3FT | 0 AMPx5 (mV) 20 | 0 AMPMAX 150 | | 15 85 |
| | 362 (usec) 262 | | 0 AMPMIN 150 | | |

Calibration Report

Database File: anadarko_nrc_4c-8hz_jbgr_logs.db
Dataset Pathname: run3/pass3
Dataset Creation: Sun Mar 23 13:41:10 2014 by Calc SCH 120430

Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | 130608 | |
| Tool Model: | GRCCLTEMP | |
| Performed: | Sun Jun 13 14:33:21 1993 | |
| Calibrator Value: | 1.0 | GAPI |
| Background Reading: | 0.0 | cps |
| Calibrator Reading: | 1.0 | cps |
| Sensitivity: | 1.0000 | GAPI/cps |

Temperature Calibration Report

| | | |
|---|---|---|
| Serial Number: | 130608 | |
| Tool Model: | GRCCLTEMP | |
| Performed: | Thu Aug 15 08:56:46 2013 | |
| | Reference | Reading |
| Low Reference: | 100.00 degF | 6509.65degF |
| High Reference: | 350.00 degF | 27350.70degF |
| Gain: | 0.01 | |
| Offset: | 21.91 | |
| Delta Spacing | 1 | |

Segmented Cement Bond Log Calibration Report

| | | |
|---|---|---|
| Serial Number: | Base | |
| Tool Model: | Probe | |
| Calibration Casing Diameter: | 7.000 | in |
| Calibration Depth: | 6430.691 | ft |

Master Calibration, performed Sun Mar 23 12:12:57 2014:

| | Raw (v) | | Calibrated (mv) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| 3' | 0.030 | 0.615 | 2.000 | 62.165 | 99.772 | -1.072 |
| CAL | 0.963 | 1.006 | | | | |
| 5' | 0.024 | 0.681 | 2.000 | 62.165 | 91.610 | -0.205 |
| SUM | | | | | | |
| S1 | 0.019 | 0.557 | 5.000 | 95.000 | 167.066 | 1.892 |
| S2 | 0.030 | 0.610 | 5.000 | 95.000 | 155.073 | 0.419 |
| S3 | 0.042 | 0.655 | 5.000 | 95.000 | 146.936 | -1.183 |
| S4 | 0.042 | 0.678 | 5.000 | 95.000 | 141.662 | -0.987 |
| S5 | 0.031 | 0.653 | 5.000 | 95.000 | 144.633 | 0.581 |
| S6 | 0.025 | 0.605 | 5.000 | 95.000 | 155.067 | 1.180 |
| S7 | 0.025 | 0.560 | 5.000 | 95.000 | 168.237 | 0.852 |
| S8 | 0.025 | 0.553 | 5.000 | 95.000 | 170.552 | 0.765 |

Internal Reference Calibration, performed Wed Aug 21 12:08:58 2013:

| | Raw (v) | | Calibrated (v) | | Results | |
|---|---|---|---|---|---|---|
| | Zero | Cal | Zero | Cal | Gain | Offset |
| CAL | 0.000 | 0.000 | 0.963 | 1.006 | 1.000 | 0.000 |

Air Zero Calibration, performed Sun Mar 23 11:47:36 2014:

| | 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 |

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