

# COMPENSATED DENSITY / NEUTRON LOG

|                              |                           |                   |                                     |
|------------------------------|---------------------------|-------------------|-------------------------------------|
| Company                      | I. A. OPERATING, INC.     |                   |                                     |
| Well                         | SPRING CREEK #18-1        |                   |                                     |
| Field                        | WILDCAT                   |                   |                                     |
| County                       | GRAHAM                    | State             | KANSAS                              |
| Company                      | I. A. OPERATING, INC.     | Well              | SPRING CREEK #18-1                  |
| Field                        | WILDCAT                   | County            | GRAHAM                              |
| County                       | GRAHAM                    | State             | KANSAS                              |
| Location:                    | API # : 15-065-24118-0000 |                   | Other Services<br>DIL/MEL<br>SONIC  |
| Permanent Datum              | GROUND LEVEL              | Elevation         | 2575                                |
| Log Measured From            | KELLY BUSHING 8' A.G.L.   | Elevation         | K.B. 2583<br>D.F. 2581<br>G.L. 2575 |
| Drilling Measured From       | KELLY BUSHING             | Elevation         |                                     |
| SEC 18                       | TWP 6S                    | RGE 25W           |                                     |
| Date                         | 7/13/16                   |                   |                                     |
| Run Number                   | ONE                       |                   |                                     |
| Depth Driller                | 3900                      |                   |                                     |
| Depth Logger                 | 3903                      |                   |                                     |
| Bottom Logged Interval       | 3879                      |                   |                                     |
| Top Log Interval             | 3300                      |                   |                                     |
| Casing Driller               | 8 5/8"@306"               |                   |                                     |
| Casing Logger                | 306                       |                   |                                     |
| Bit Size                     | 7 7/8"                    |                   |                                     |
| Type Fluid in Hole           | CHEMICAL MUD              | CHLORIDES 900 PPM |                                     |
| Density / Viscosity          | 8.9/53                    |                   |                                     |
| pH / Fluid Loss              | 11.5/6.0                  |                   |                                     |
| Source of Sample             | FLOWLINE                  |                   |                                     |
| Rim @ Meas. Temp             | 1.50@90F                  |                   |                                     |
| Rmf @ Meas. Temp             | 1.13@90F                  |                   |                                     |
| Rmc @ Meas. Temp             | 1.80@90F                  |                   |                                     |
| Source of Rmf / Rmc          | MEASUREMENT               |                   |                                     |
| Rim @ BHT                    | 1.17@115F                 |                   |                                     |
| Time Circulation Stopped     | 2 HOURS                   |                   |                                     |
| Time Logger on Bottom        | 10:15 A.M.                |                   |                                     |
| Maximum Recorded Temperature | 115F                      |                   |                                     |
| Equipment Number             | 922339                    |                   |                                     |
| Location                     | HAYS, KANSAS              |                   |                                     |
| Recorded By                  | JEFF LUEBBERS             |                   |                                     |
| Witnessed By                 | JEFF LAWLER               |                   |                                     |

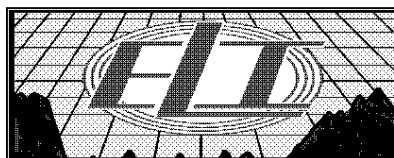
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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 ELI WIRELINE HAYS, KANSAS (785) 628-6395  
DIRECTIONS

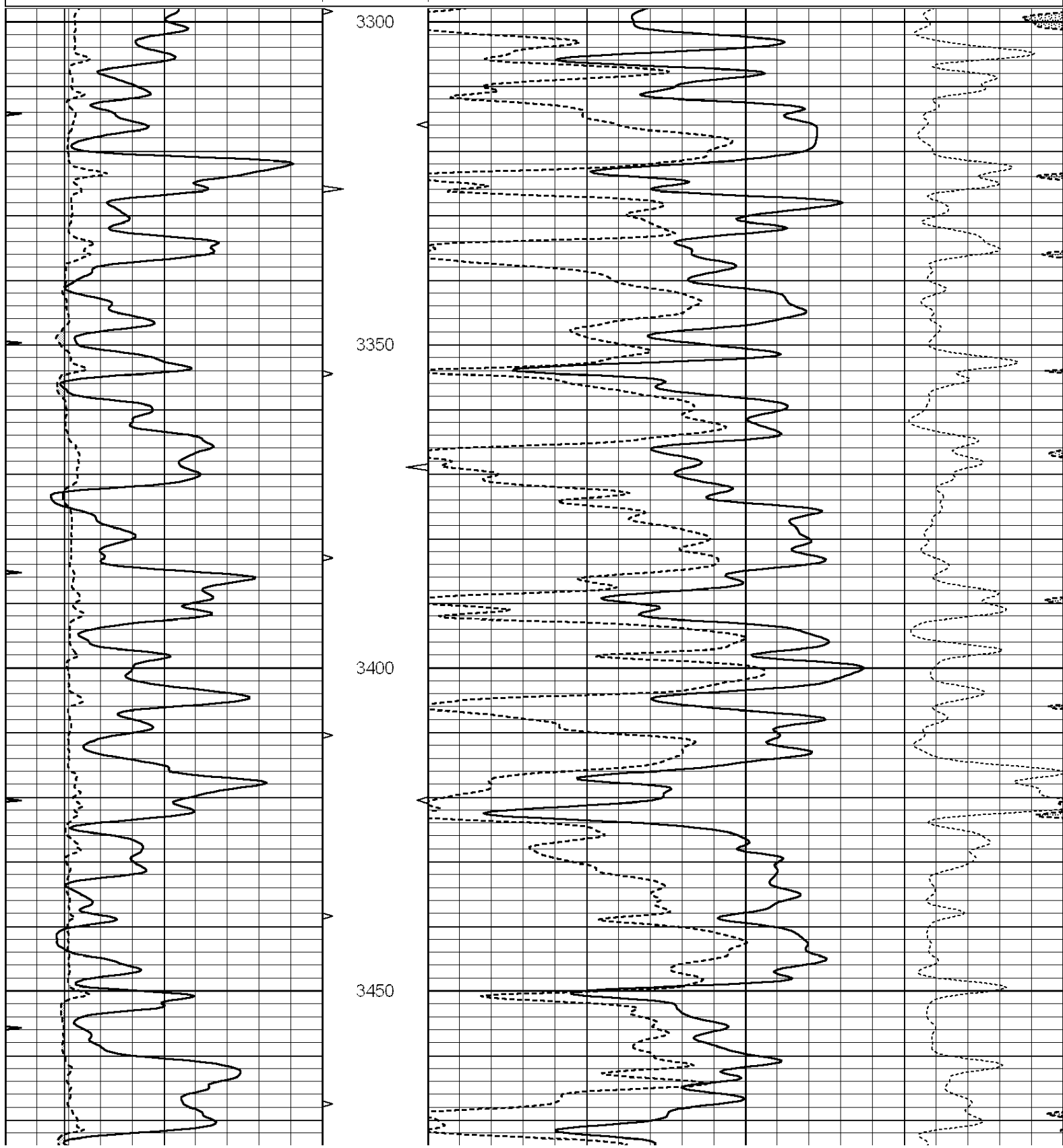
STUDLEY, KS., E. SIDE AT SHERIDAN COUNTY SIGN, 13N. ON "100TH AVE." TO "RD. CC & EE", 1E.,  
1/2S., W. INTO

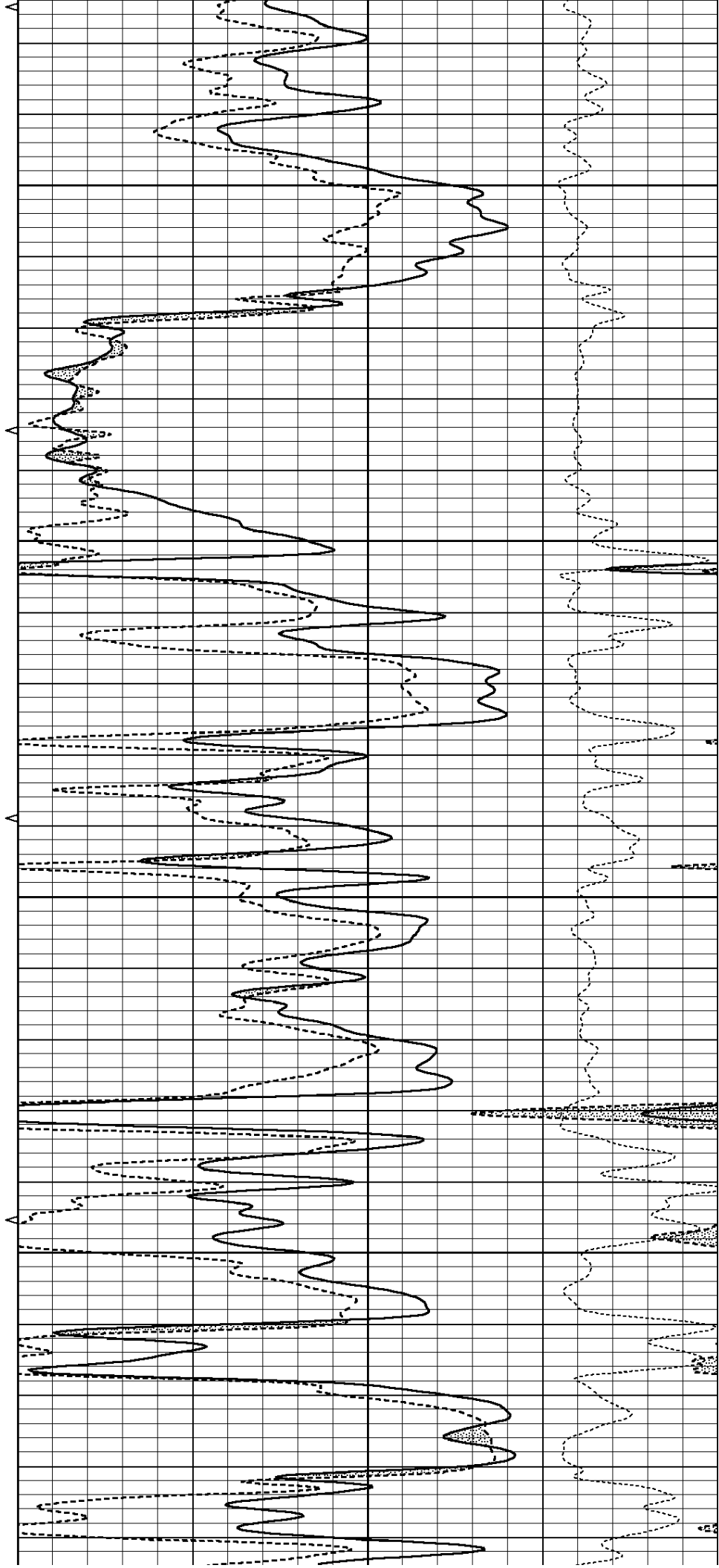
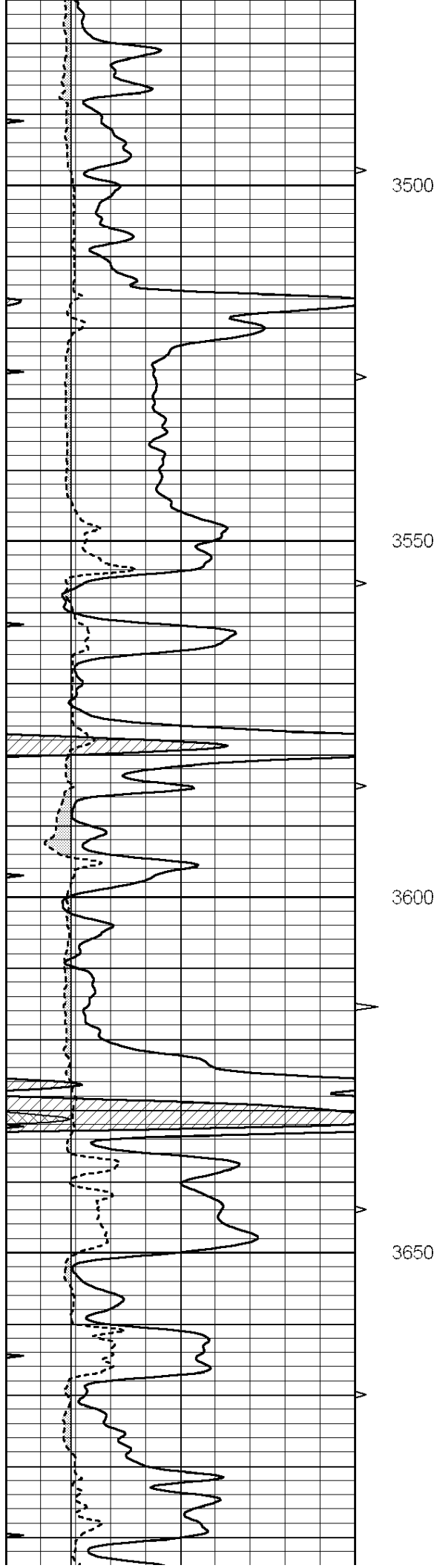


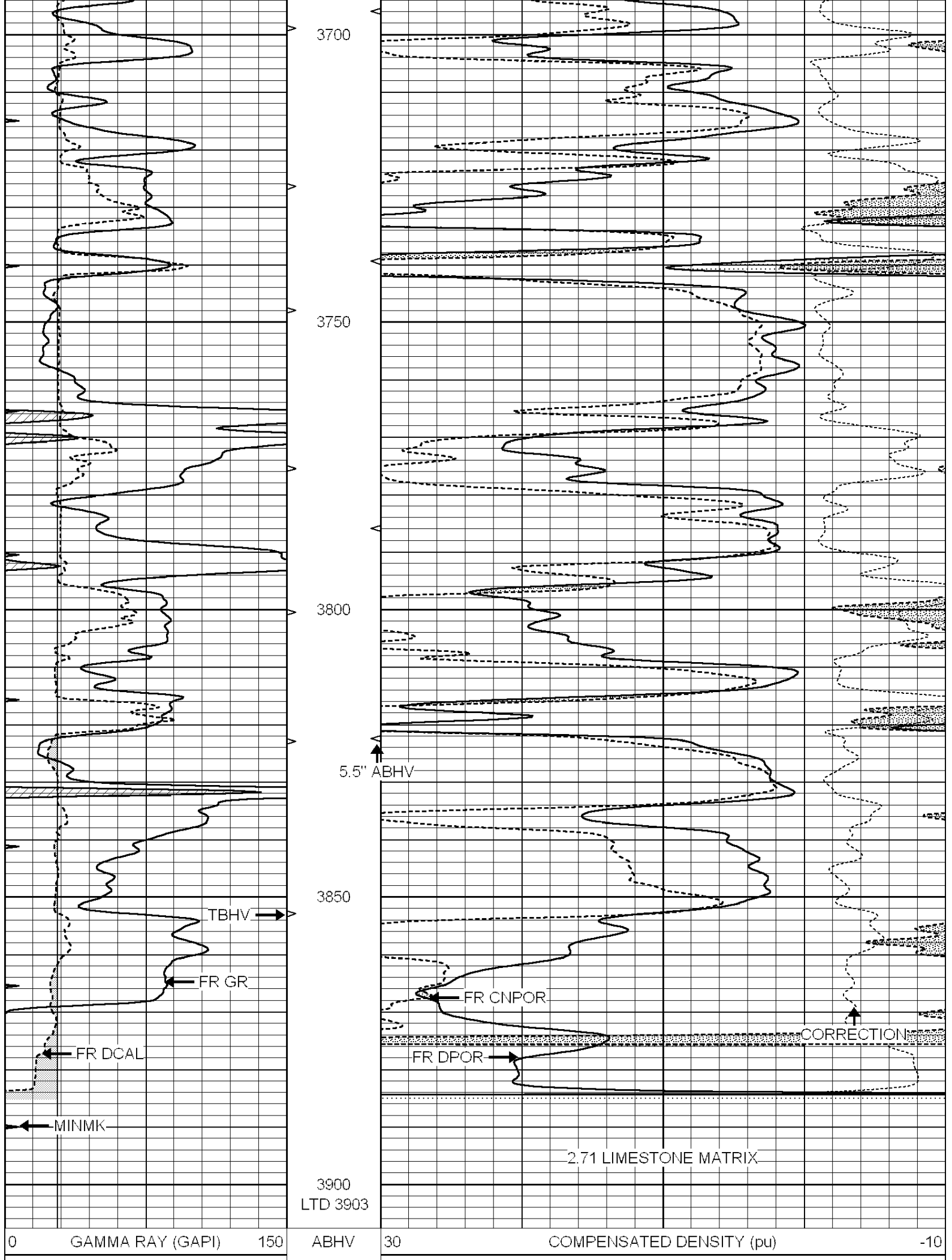
# MAIN SECTION

Database File: 30752ddn.db  
 Dataset Pathname: pass3.4  
 Presentation Format: den\_neu  
 Dataset Creation: Wed Jul 13 12:07:15 2016 by Calc SOC 120430  
 Charted by: Depth in Feet scaled 1:240

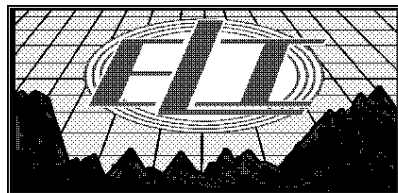
|   |                  |     |          |      |                          |      |
|---|------------------|-----|----------|------|--------------------------|------|
| 0 | GAMMA RAY (GAPI) | 150 | ABHV     | 30   | COMPENSATED DENSITY (pu) | -10  |
| 6 | CALIPER (in)     | 16  | 10 (ft3) | 0 30 | COMPENSATED NEUTRON (pu) | -10  |
| 0 | MINMK            | 20  | TBHV     |      | -0.25 CORRECTION (g/cc)  | 0.25 |
|   |                  |     | 0 (ft3)  | 10   |                          |      |







|   |              |    |          |    |    |                          |                   |      |
|---|--------------|----|----------|----|----|--------------------------|-------------------|------|
| 6 | CALIPER (in) | 16 | 10 (ft3) | 0  | 30 | COMPENSATED NEUTRON (pu) |                   | -10  |
| 0 | MINMK        | 20 | TBHV     |    |    | -0.25                    | CORRECTION (g/cc) | 0.25 |
|   |              |    | 0 (ft3)  | 10 |    |                          |                   |      |

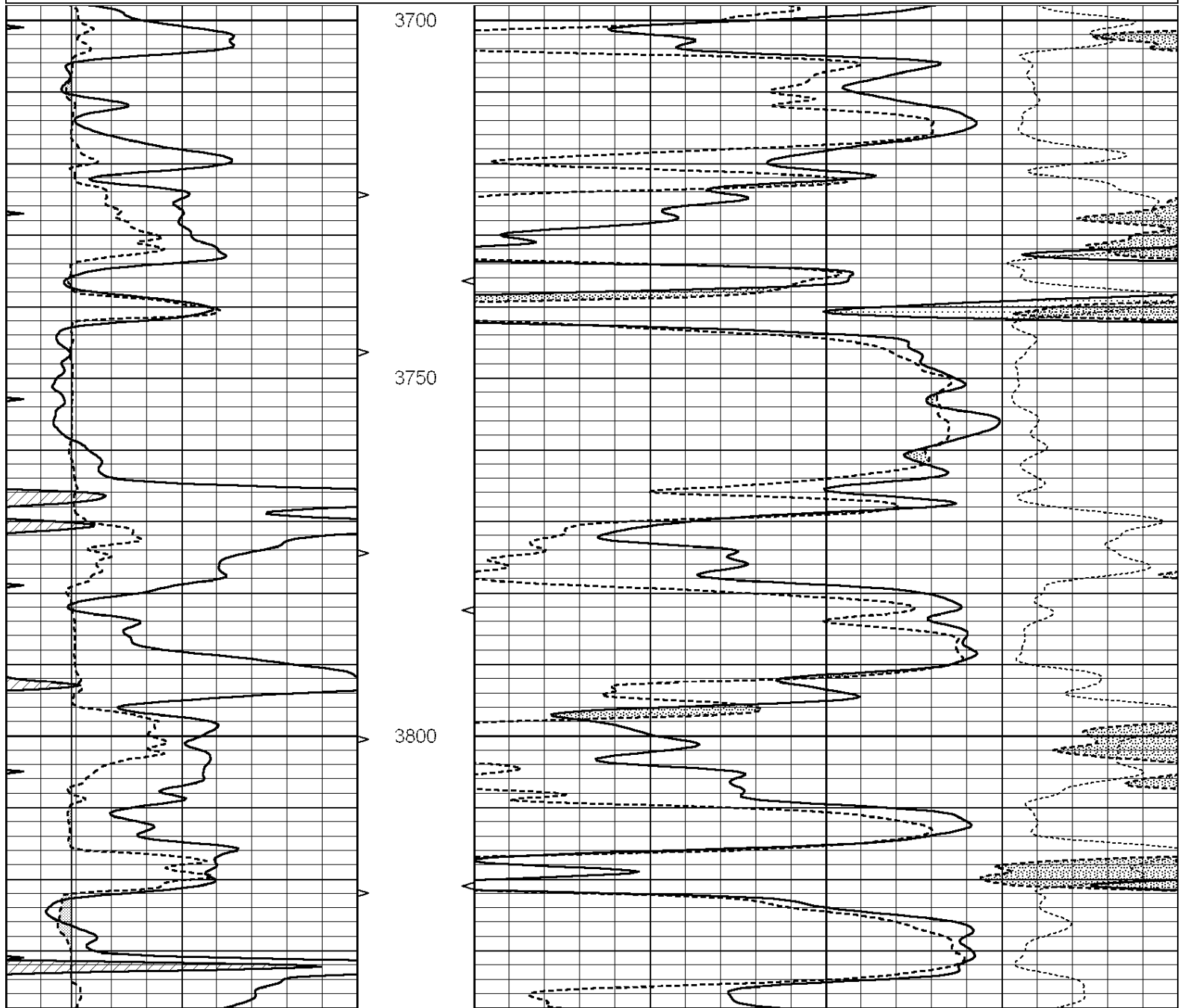


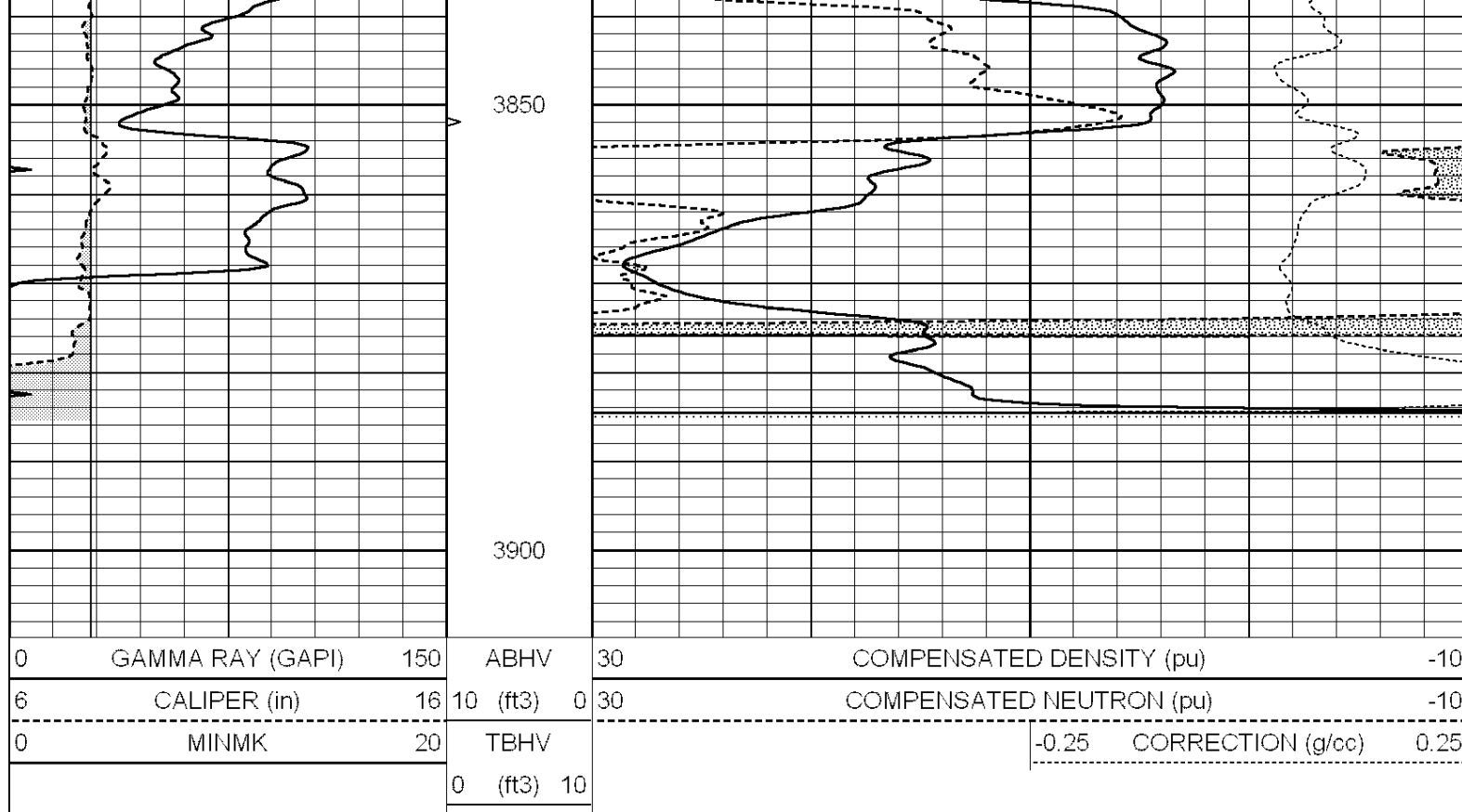
# REPEAT SECTION

Database File:
Dataset Pathname:
Presentation Format:
Dataset Creation:
Charted by:

30752ddn.db
pass2.4
den\_neu
Wed Jul 13 10:42:47 2016
Depth in Feet scaled 1:240

|   |                  |     |          |       |                          |                          |                   |      |     |
|---|------------------|-----|----------|-------|--------------------------|--------------------------|-------------------|------|-----|
| 0 | GAMMA RAY (GAPI) | 150 | ABHV     | 30    | COMPENSATED DENSITY (pu) |                          |                   | -10  |     |
| 6 | CALIPER (in)     | 16  | 10 (ft3) | 0     | 30                       | COMPENSATED NEUTRON (pu) |                   |      | -10 |
|   |                  |     |          | ----- |                          |                          |                   |      |     |
| 0 | MINMK            | 20  | TBHV     |       |                          | -0.25                    | CORRECTION (g/cc) | 0.25 |     |
|   |                  |     | 0 (ft3)  | 10    |                          |                          |                   |      |     |





### Calibration Report

Database File: 30752ddn.db  
 Dataset Pathname: pass3.4  
 Dataset Creation: Wed Jul 13 12:07:15 2016 by Calc SOC 120430

### Dual Induction Calibration Report

Serial-Model: PROBE7-DILG  
 Surface Cal Performed: Wed Jul 13 10:13:32 2016  
 Downhole Cal Performed: Mon Jul 28 12:02:56 2008  
 After Survey Verification Performed: Mon Jul 28 12:02:56 2008

#### Surface Calibration

| Readings  |        |       |   | References |         |        | Results |         |
|-----------|--------|-------|---|------------|---------|--------|---------|---------|
| Loop:     | Air    | Loop  |   | Air        | Loop    |        | m       | b       |
| Deep      | -0.014 | 0.629 | V | 0.000      | 400.000 | mmho/m | 625.000 | -2.000  |
| Medium    | 0.039  | 0.728 | V | 0.000      | 464.000 | mmho/m | 675.000 | -42.000 |
| Internal: | Zero   | Cal   |   | Zero       | Cal     |        | m       | b       |
| Deep      | 0.011  | 0.610 | V | 0.000      | 400.000 | mmho/m | 667.135 | -7.256  |
| Medium    | 0.005  | 0.712 | V | 0.000      | 464.000 | mmho/m | 655.677 | -3.102  |

#### Downhole Calibration

| Readings |       |        |        | References |          |        | Results |       |
|----------|-------|--------|--------|------------|----------|--------|---------|-------|
|          | Zero  | Cal    |        | Zero       | Cal      |        | m'      | b'    |
| Deep     | 0.000 | 0.000  | mmho/m | 14.508     | 388.384  | mmho/m | 1.000   | 0.000 |
| Medium   | 0.000 | 0.000  | mmho/m | 166.367    | 504.400  | mmho/m | 1.000   | 0.000 |
| LL3      |       | 7.500  | V      |            | 1400.000 | Ohm-m  |         |       |
|          |       | 0.000  | V      |            | 20.000   | Ohm-m  |         |       |
|          |       | -7.200 | V      |            | 4000.000 | mmho-m |         |       |

#### After Survey Verification

| Readings | Targets | Results |
|----------|---------|---------|
|----------|---------|---------|

|        | Zero  | Cal   |        | Zero  | Cal   |        | m'    | b'    |
|--------|-------|-------|--------|-------|-------|--------|-------|-------|
| Deep   | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 |
| Medium | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 |
| LL3    |       | 1.000 | Ohm-m  |       | 1.000 | Ohm-m  |       |       |
|        |       | 0.000 | Ohm-m  |       | 0.000 | Ohm-m  |       |       |
|        |       | 1.000 | mmho-m |       | 1.000 | mmho-m |       |       |

Litho Density Calibration Report

Serial: 003N      Model: PRB

| Master Calibration |            |  | Performed Mon Mar 14 08:48:13 2016 |         |          |                     |           |         |
|--------------------|------------|--|------------------------------------|---------|----------|---------------------|-----------|---------|
|                    | Background |  | Magnesium                          |         | Aluminum |                     | Sandstone |         |
| Window 1           | 1751.3     |  | 11741.0                            |         | 3857.3   |                     | 12907.8   | cps     |
| Window 2           | 1589.4     |  | 9536.2                             |         | 3267.6   |                     | 10282.0   | cps     |
| Window 3           | 1413.4     |  | 6466.1                             |         | 2463.2   |                     | 6828.7    | cps     |
| Window 4           | 399.5      |  | 407.1                              |         | 405.1    |                     | 406.5     | cps     |
| Long Space         | 0.0        |  | 7946.7                             |         | 1678.1   |                     | 8692.6    | cps     |
| Short Space        | 2.2        |  | 3366.2                             |         | 2134.1   |                     | 3410.2    | cps     |
| Rho                |            |  | 1.7100                             |         | 2.5900   |                     | 1.3800    | g/cc    |
| Pe                 |            |  | 0.0000                             |         | 2.5700   |                     | 1.5500    |         |
| Rib Angle          | : 43.7     |  | Rib Slope                          | : 0.954 |          | Density/Spine Ratio |           | : 0.543 |
| Spine Angle        | : 73.7     |  | Spine Slope                        | : 3.412 |          | Spine Intercept     |           | : -18.7 |

| Before Survey Verification |     |  | Performed Wed Dec 31 18:00:00 1969 |  |        |  |        |      |
|----------------------------|-----|--|------------------------------------|--|--------|--|--------|------|
|                            |     |  |                                    |  |        |  |        |      |
| Window 1                   | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Window 2                   | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Window 3                   | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Window 4                   | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Long Space                 | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Short Space                | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Measured Rho               |     |  | 0.0000                             |  | 0.0000 |  | 0.0000 | g/cc |
| Measured Correction        |     |  | 0.0000                             |  | 0.0000 |  | 0.0000 | g/cc |
| Measured Pe                |     |  |                                    |  | 0.0000 |  | 0.0000 |      |

| After Survey Verification |     |  | Performed Wed Dec 31 18:00:00 1969 |  |        |  |        |      |
|---------------------------|-----|--|------------------------------------|--|--------|--|--------|------|
|                           |     |  |                                    |  |        |  |        |      |
| Window 1                  | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Window 2                  | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Window 3                  | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Window 4                  | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Long Space                | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Short Space               | 0.0 |  | 0.0                                |  | 0.0    |  | 0.0    | cps  |
| Measured Rho              |     |  | 0.0000                             |  | 0.0000 |  | 0.0000 | g/cc |
| Measured Correction       |     |  | 0.0000                             |  | 0.0000 |  | 0.0000 | g/cc |
| Measured Pe               |     |  |                                    |  | 0.0000 |  | 0.0000 |      |

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Compensated Neutron Calibration Report

|                |        |
|----------------|--------|
| Serial Number: | 070808 |
| Tool Model:    | Probe  |

|                         |          |          |        |
|-------------------------|----------|----------|--------|
| PRE-SURVEY VERIFICATION |          |          |        |
| Detector                | Readings | Measured | Target |
| Short Space             | cps      |          |        |

|                              |  |                          |          |        |
|------------------------------|--|--------------------------|----------|--------|
| Long Space                   |  | cps                      | pu       | pu     |
| POST-SURVEY VERIFICATION     |  |                          |          |        |
| Detector                     |  | Readings                 | Measured | Target |
| Short Space                  |  | cps                      |          |        |
| Long Space                   |  | cps                      | pu       | pu     |
| Gamma Ray Calibration Report |  |                          |          |        |
| Serial Number:               |  | 070558                   |          |        |
| Tool Model:                  |  | OPEN_GR                  |          |        |
| Performed:                   |  | Sun Jul 03 22:02:17 2016 |          |        |
| Calibrator Value:            |  | 1.0                      | GAPI     |        |
| Background Reading:          |  | 0.0                      | cps      |        |
| Calibrator Reading:          |  | 1.0                      | cps      |        |
| Sensitivity:                 |  | 0.2800                   | GAPI/cps |        |