**PACIFIC SURVEYS**

# ELECTRIC LOG
# GAMMA RAY

Job No.
15538

File No.

Company U.S. GEOLOGICAL SURVEY
Well SDSY
Field SAN DIEGO
County SAN DIEGO State CA

Location:

GPS:N33o05.240' W116o58.492'

Sec. Twp. Rge.

Other Services:

GR/LL3
SONIC/VDL
CALIPER

| | | | |
|---|---|---|---|
| Permanent Datum | G.L. | Elevation above perm. datum | Elevation |
| Log Measured From | G.L. 0' | | K.B. |
| Drilling Measured From | G.L. | | D.F. |
| | | | G.L. |

| | | | |
|---|---|---|---|
| Date | 10/16/2010 | | |
| Run Number | ONE | | |
| Depth Driller | 350' | | |
| Depth Logger | 350' | | |
| Bottom Logged Interval | 350' | | |
| Top Log Interval | 30' | | |
| Casing Driller | N/A | | |
| Casing Logger | N/A | | |
| Bit Size | 7.875" | | |
| Type Fluid in Hole | BENTONITE | | |
| Density / Viscosity | N/A | | |
| pH / Fluid Loss | N/A | | |
| Source of Sample | PIT | | |
| Rm @ Meas. Temp | 4.8 @ 77F | | |
| Rmf @ Meas. Temp | 5.3 @ 77F | | |
| Rmc @ Meas. Temp | N/A | | |
| Source of Rmf / Rmc | MEASURE | | |
| Rm @ BHT | N/A | | |
| Time Circulation Stopped | 3 HOURS | | |
| Time Logger on Bottom | 7:30 PM | | |
| Max. Recorded Temperature | N/A | | |
| Equipment Number | PS-1 | | |
| Location | L.A. | | |
| Recorded By | ABREAU | | |
| Witnessed By | | | |

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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

Calibration Report

Database File: 15538.db
Dataset Pathname: elog
Dataset Creation: Sat Oct 16 19:30:16 2010 by Log Open-Cased 090629

ELOG Calibration Report

| | |
|---|---|
| Serial: | D1 |
| Model: | DTQ |
| Shop Calibration Performed: | Wed Apr 14 08:31:16 2010 |
| Before Survey Verification Performed: | Wed Jul 28 14:39:06 2010 |
| After Survey Verification Performed: | Tue Nov 20 10:45:24 2001 |

Shop Calibration

| | Readings | | | References | | | Results | |
|---|---|---|---|---|---|---|---|---|
| | Zero | Cal | | Zero | Cal | | Gain | Offset |
| Short | 10.542 | 102.356 | | 10.200 | 102.200 | Ohm-m | 1.002 | -0.363 |
| Long | 12.899 | 101.908 | | 10.200 | 102.200 | Ohm-m | 1.034 | -17.132 |
| IEE | 220.700 | 7403.940 | counts | 0.242 | 8.103 | A | | |
| VSN | 109.100 | 8420.260 | counts | 2.081 | 160.606 | V | | |
| VLN | 71.300 | 2136.020 | counts | 1.360 | 40.742 | V | | |

Before Survey Verification

| | Readings | | | References | | | Results | |
|---|---|---|---|---|---|---|---|---|
| | Zero | Cal | | Zero | Cal | | Gain | Offset |
| Short | 23.831 | 101.318 | | 43.999 | 101.225 | Ohm-m | 0.739 | 26.400 |
| Long | 114.753 | 102.199 | | 102.713 | 102.713 | Ohm-m | 0.980 | 2.529 |
| IEE | 218.420 | 7514.180 | counts | 0.239 | 8.224 | A | | |
| VSN | 58.480 | 8553.520 | counts | 1.115 | 163.148 | V | | |
| VLN | 70.400 | 2156.980 | counts | 1.343 | 41.142 | V | | |

After Survey Verification

| | Readings | | | References | | | Results | |
|---|---|---|---|---|---|---|---|---|
| | Zero | Cal | | Zero | Cal | | Gain | Offset |
| Short | 0.000 | 99.861 | | 0.000 | 99.853 | Ohm-m | 1.000 | 0.000 |
| Long | 0.000 | 102.069 | | 102.055 | 102.055 | Ohm-m | 1.000 | 0.000 |
| IEE | 129.370 | 6528.851 | counts | 0.142 | 7.145 | A | | |
| VSN | 142.833 | 7325.000 | counts | 2.724 | 139.715 | V | | |
| VLN | 114.778 | 1871.738 | counts | 2.189 | 35.701 | V | | |

After Survey Verification compared to Before Survey Calibration

| | Zero | | | Cal | | |
|---|---|---|---|---|---|---|
| | Before | After | | Before | After | |
| Short | 43.999 | 0.000 | Ohm-m | 101.225 | 99.853 | Ohm-m |
| Long | 115.019 | 0.000 | Ohm-m | 102.713 | 102.055 | Ohm-m |

Gamma Ray Calibration Report

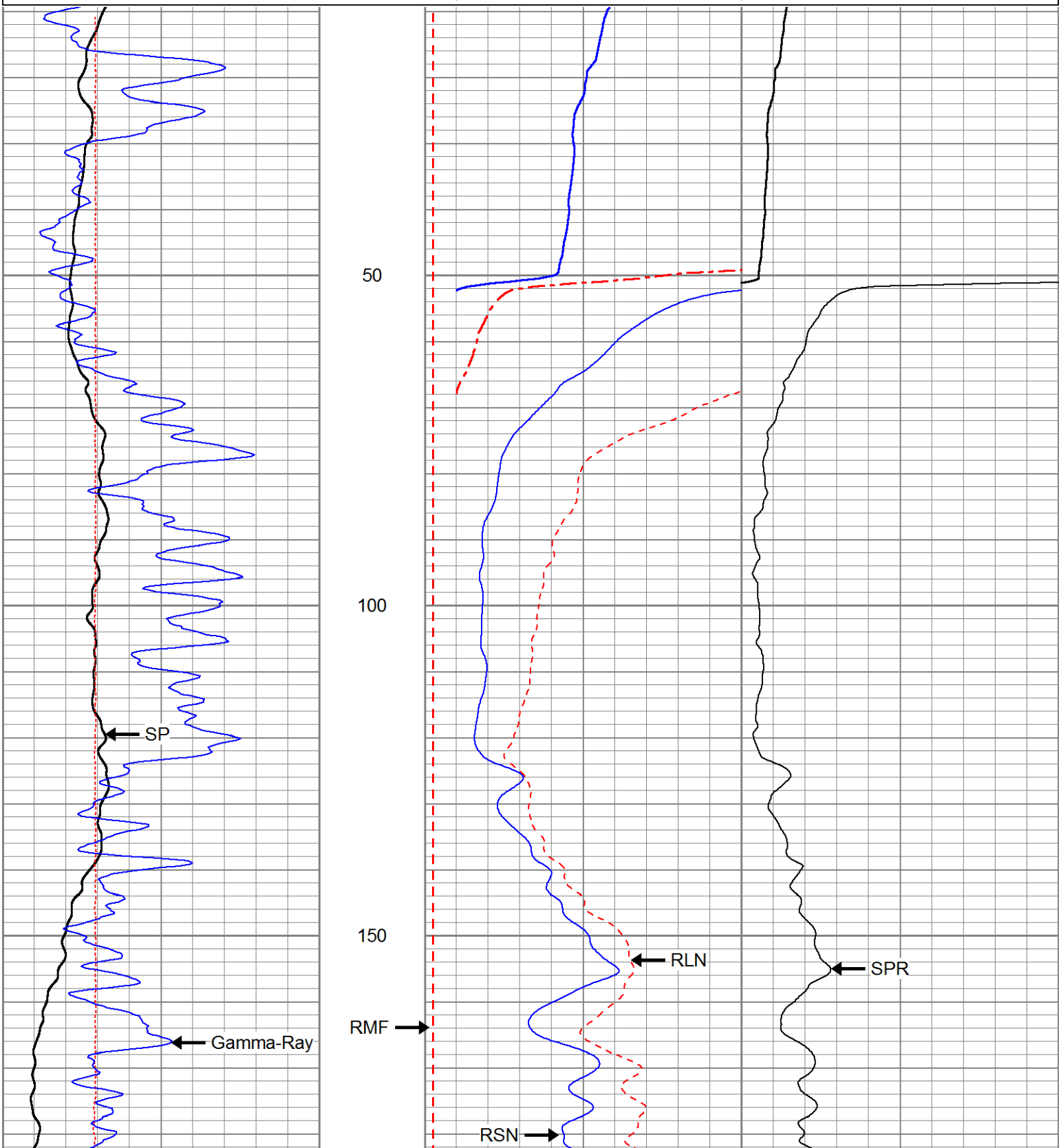
| | | |
|---|---|---|
| Serial Number: | D4 | |
| Tool Model: | ELOG | |
| Performed: | Sat Jun 26 17:33:07 2010 | |
| Calibrator Value: | 162.0 | GAPI |
| Background Reading: | 172.5 | cps |
| Calibrator Reading: | 717.9 | cps |
| Sensitivity: | 0.2970 | GAPI/cps |

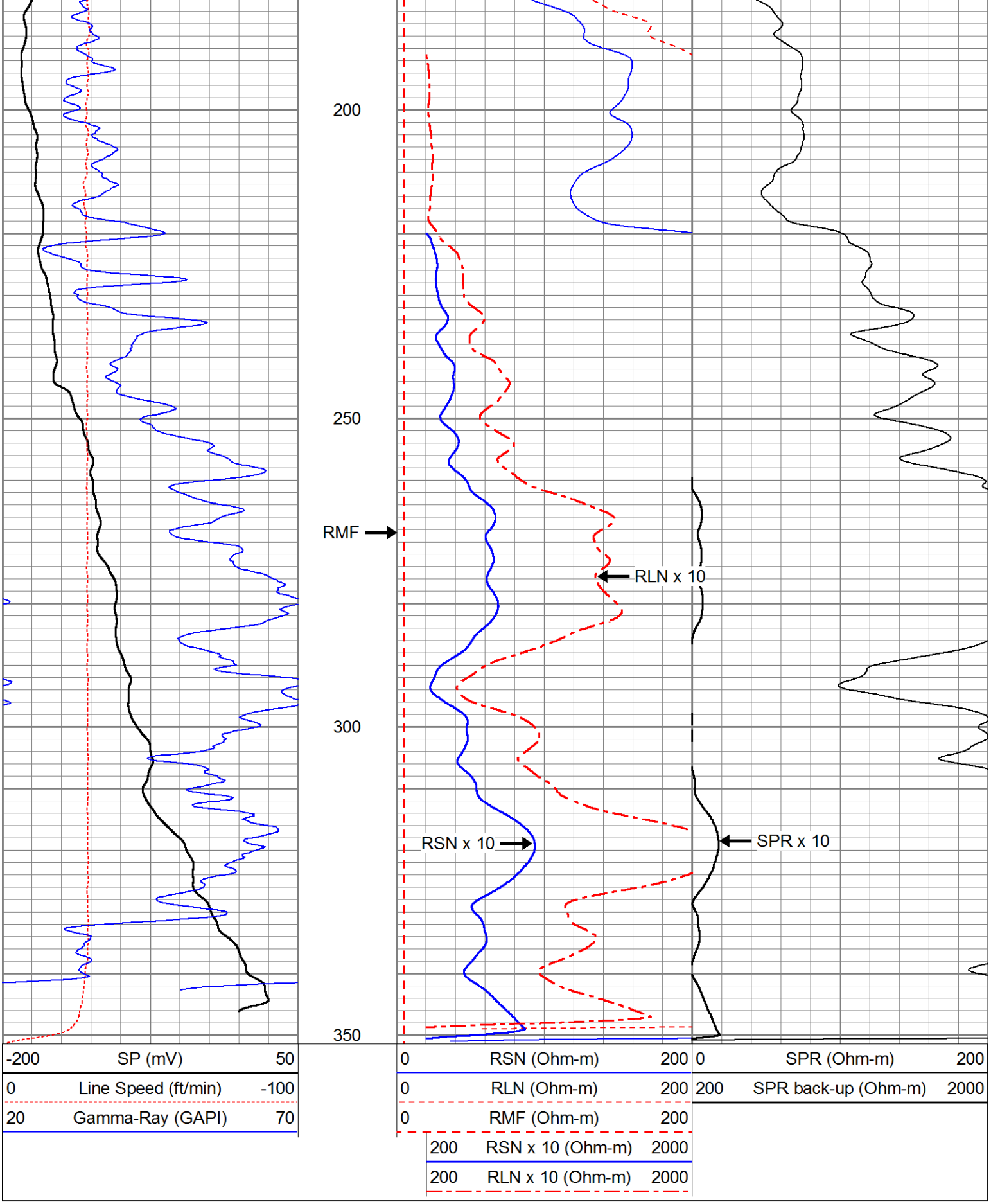
| | |
|---|---|
| Database File: | 15538.db |
| Dataset Pathname: | elog |
| Presentation Format: | elog |
| Dataset Creation: | Sat Oct 16 19:30:16 2010 by Log Open-Cased 090629 |
| Charted by: | Depth in Feet scaled 1:240 |

| | | |
|---|---|---|
| -200 | SP (mV) | 50 |
| 0 | Line Speed (ft/min) | -100 |
| 20 | Gamma-Ray (GAPI) | 70 |

| | | |
|---|---|---|
| 0 | RSN (Ohm-m) | 200 |
| 0 | RLN (Ohm-m) | 200 |
| 0 | RMF (Ohm-m) | 200 |
| 200 | RSN x 10 (Ohm-m) | 2000 |
| 200 | RLN x 10 (Ohm-m) | 2000 |

| | | |
|---|---|---|
| 0 | SPR (Ohm-m) | 200 |
| 200 | SPR back-up (Ohm-m) | 2000 |




200
250
RMF
300
350
RLN x 10
RSN x 10
SPR x 10
-200 SP (mV) 50
0 Line Speed (ft/min) -100
20 Gamma-Ray (GAPI) 70
0 RSN (Ohm-m) 200
0 RLN (Ohm-m) 200
0 RMF (Ohm-m) 200
200 RSN x 10 (Ohm-m) 2000
200 RLN x 10 (Ohm-m) 2000
0 SPR (Ohm-m) 200
200 SPR back-up (Ohm-m) 2000