# WELL ANALYSIS CORPORATION

## AUDIO DETECTION SURVEY

FILING NO.

| | |
|---|---|
| COMPANY: | SOUTHERN CALIF. GAS CO. |
| WELL: | FERNANDO FEE 32F |
| FIELD: | ALISO CANYON |
| COUNTY: | LOS ANGELES |
| STATE: | CALIFORNIA |
| LOCATION: | DSIRICT 2 |
| OTHER SVC: | |

API NUMBER: 0403721313
SEC: 27 TWN: 3N RNG: 16W

VS

PERMANENT DATUM: GROUND LEVEL ELEV: 1995 FT.
LOG MEASURED FROM KB 15' ABOVE PERM DATUM
DRILLING MEASURED FROM

-ELEVATIONS-
KB: 2010 Ft.
DF: Ft.
GL: 1995 Ft.

| | | | FLOWING | INJECTION | SHUT-IN |
|---|---|---|---|---|---|
| DATE LOG RAN | 03-10-2016 | PRESSURE | | | |
| RUN NUMBER | ONE | TUBING PSI | | | 1065 |
| EFFECTIVE DEPTH | 7400' | CASING PSI | | | 1061 |
| PICKUP DEPTH | 7333' | INJECTION RATE | N/A | | |
| BOT LOGGED INT | 7333' | OBSERVED RATE | N/A | | |
| TOP LOGGED INT | 25' | R/A SOURCE | N/A | | |
| TYPE OF INJECT | NONE | ACTIVITY | N/A | | |
| FLUID IN WELL | GAS | HALF LIFE | N/A | | |
| FLUID LEVEL | NONE | | | | |
| WELL STATUS | STATIC | | PRODUCTION DATA | | |
| MAX TEMPERATURE | 152.5 F. | OIL Gr. | N/A | OIL = | N/A |
| AT DEPTH | 6951.5' | GAS Gr. | N/A | GAS= | N/A |
| TEMPERATURE SENS | 1 F/DIV. | MPP | N/A | BHP = | N/A |
| LOGGING SPEED | VARIOUS | | | WATER= | N/A |
| RECORDED BY | S. MACIAS | | | | |
| WITNESSED BY | E. BLEVINS | | | | |
| EMAIL TO | A. KARGAR | | | | |
| DEPTH CORRELATION | LINER TOP | | | | |

C:\DATA\03721313_SURVEY_NOISE_03-10-2016(FF32F)

| Equipment Data | | |
|---|---|---|
| Collar Locator 1.375" | | |
| Temperature Tool 1.375" | | |
| Audio Detector 1.375" | | |

TOOL DIAGRAM

COLLAR LOCATOR AT 2.0'
TEMPERATURE TOOL AT 5.0'
AUDIO DETECTOR AT 8.0'

Remarks/Survey Results

08:25 AM - ON LOCATION
09:07 AM - RAN IN HOLE
09:07 AM - BEGIN SURVEY
12:08 PM - PULL OUT OF HOLE
N|A - OFF LOCATION
SAND TAG MARKERS: 7207' S4
7286' S8

CASING AND TUBING RECORD

| SIZE | WT(#) | FROM | TO | SIZE | WT(#) | FROM | TO |
|---|---|---|---|---|---|---|---|
| 13.375" | | SURFACE | 724' | 2.875" | 6.5 | SURFACE | 6931' |
| 8.625" | 36 | SURFACE | 7041' | | | | |
| 6.625" | 28 | SURFACE | 6954' | | | | |
| 4.500" | 11.6 | 6954' | 7385' | | | | |

| STR. | PIPE DIA. | PERFORATIONS |
|---|---|---|
| A | 4.500" | 7066'-7216'. |
| | | PACKERS: 6926.2'-6930.5', 6944.5'-6949.5', 6954.1'-6958.4'. |
| | | MANDRELS: 6840.2'-6847.2'. |
| | | SLEEVES: 6881.2'-6885.2', 6964.5'-6967.3'. |
| | | ON\|OFF TOOL: 6917.8'-6920'. |

Audio Data: c:\data\noise.txt

| DEPTH | 200HZ | 600HZ | 1000HZ | 2000HZ |
|---|---|---|---|---|
| 50 | 11.10 | 9.40 | 4.70 | 2.90 |
| 300 | 8.70 | 8.40 | 4.40 | 2.80 |
| 550 | 9.20 | 8.80 | 4.60 | 2.80 |
| 800 | 9.10 | 8.40 | 4.70 | 3.10 |
| 1050 | 9.70 | 8.80 | 5.10 | 3.30 |
| 1300 | 8.60 | 8.20 | 4.50 | 2.90 |
| 1550 | 8.90 | 8.30 | 4.60 | 2.90 |
| 1800 | 8.50 | 8.20 | 4.40 | 2.80 |
| 2050 | 9.00 | 8.00 | 4.80 | 3.30 |
| 2300 | 9.40 | 8.70 | 4.90 | 3.30 |
| 2550 | 9.80 | 8.90 | 4.80 | 2.90 |
| 2800 | 8.10 | 7.90 | 4.10 | 2.50 |
| 3050 | 10.20 | 9.70 | 5.10 | 3.10 |
| 3300 | 9.80 | 9.00 | 5.00 | 3.10 |
| 3320 | 8.80 | 8.40 | 4.50 | 2.90 |
| 3340 | 8.90 | 8.60 | 4.60 | 2.90 |
| 3360 | 8.60 | 8.20 | 4.50 | 2.80 |
| 3380 | 8.90 | 8.50 | 4.60 | 2.90 |
| 3400 | 8.60 | 8.30 | 4.50 | 2.80 |
| 3420 | 8.60 | 8.20 | 4.40 | 2.80 |
| 3440 | 9.00 | 8.50 | 4.60 | 2.80 |
| 3460 | 8.60 | 8.20 | 4.40 | 2.80 |
| 3480 | 8.30 | 7.70 | 4.40 | 2.90 |
| 3500 | 9.50 | 8.90 | 4.70 | 2.90 |
| 3520 | 9.70 | 9.20 | 4.80 | 2.90 |
| 3540 | 8.70 | 8.30 | 4.50 | 2.80 |
| 3560 | 9.70 | 8.90 | 5.00 | 3.20 |
| 3580 | 10.80 | 9.80 | 5.30 | 3.10 |
| 3600 | 9.80 | 8.50 | 5.30 | 3.60 |
| 3620 | 9.10 | 8.30 | 4.60 | 2.90 |
| 3640 | 10.60 | 8.90 | 5.30 | 3.50 |
| 3660 | 10.90 | 9.40 | 5.20 | 3.30 |
| 3680 | 9.50 | 8.60 | 4.80 | 3.00 |
| 3700 | 10.20 | 9.50 | 5.00 | 3.00 |
| 3750 | 8.90 | 8.30 | 4.50 | 2.80 |
| 4000 | 11.20 | 9.80 | 5.00 | 3.00 |
| 4250 | 10.10 | 9.40 | 5.00 | 3.00 |
| 4500 | 12.60 | 10.70 | 6.10 | 3.90 |
| 4750 | 12.00 | 11.10 | 6.40 | 3.90 |
| 4800 | 10.80 | 10.00 | 5.10 | 2.90 |
| 4820 | 10.80 | 10.00 | 5.20 | 2.90 |
| 4840 | 11.40 | 10.50 | 5.30 | 2.80 |
| 4860 | 11.50 | 10.50 | 5.20 | 2.80 |
| 4880 | 11.60 | 10.80 | 5.30 | 2.80 |
| 4900 | 11.30 | 10.40 | 5.20 | 2.80 |
| 5050 | 13.20 | 12.20 | 5.90 | 2.90 |
| 5300 | 15.80 | 14.40 | 7.20 | 3.20 |
| 5320 | 18.50 | 15.50 | 8.30 | 4.30 |
| 5340 | 17.60 | 14.90 | 7.60 | 3.50 |
| 5360 | 18.80 | 16.00 | 8.90 | 4.70 |
| 5380 | 20.40 | 15.80 | 8.40 | 4.30 |
| 5400 | 18.10 | 15.00 | 7.10 | 2.70 |
| 5420 | 17.90 | 15.70 | 7.10 | 3.10 |
| 5440 | 29.60 | 17.80 | 9.30 | 4.70 |
| 5460 | 21.70 | 17.00 | 8.80 | 4.80 |
| 5480 | 20.60 | 16.30 | 7.60 | 2.90 |
| 5500 | 19.30 | 17.40 | 8.90 | 4.10 |
| 5520 | 20.60 | 18.50 | 9.30 | 4.80 |
| 5540 | 21.20 | 17.20 | 8.10 | 3.90 |
| 5560 | 22.70 | 19.50 | 10.80 | 6.10 |
| 5580 | 26.60 | 19.90 | 11.30 | 6.70 |
| 5600 | 20.40 | 18.10 | 8.80 | 4.00 |
| 5620 | 27.40 | 20.90 | 11.50 | 5.60 |
| 5640 | 20.80 | 18.90 | 9.30 | 3.90 |
| 5660 | 26.30 | 20.50 | 10.60 | 5.60 |
| 5680 | 32.50 | 24.00 | 15.90 | 10.20 |
| 5700 | 24.80 | 21.50 | 11.70 | 6.00 |
| 5720 | 22.10 | 20.30 | 9.50 | 3.00 |
| 5740 | 28.90 | 23.30 | 12.80 | 6.00 |
| 5760 | 26.10 | 22.50 | 12.30 | 6.10 |
| 5780 | 23.60 | 21.30 | 10.70 | 4.70 |
| 5800 | 25.10 | 23.00 | 11.90 | 5.30 |
| 5820 | 24.30 | 22.80 | 10.60 | 3.10 |
| 5840 | 29.80 | 24.20 | 12.70 | 6.00 |
| 5860 | 25.10 | 23.60 | 10.60 | 3.20 |
| 5880 | 28.70 | 26.40 | 13.40 | 4.70 |
| 5900 | 50.90 | 28.60 | 17.20 | 10.40 |
| 5920 | 41.50 | 29.60 | 17.30 | 9.60 |
| 5940 | 32.50 | 27.60 | 13.80 | 4.70 |
| 5960 | 29.90 | 28.50 | 13.60 | 3.40 |
| 5980 | 32.50 | 28.30 | 14.40 | 5.20 |
| 6000 | 40.70 | 33.70 | 18.30 | 9.60 |
| 6020 | 38.60 | 35.00 | 21.20 | 12.60 |
| 6040 | 31.40 | 29.80 | 14.40 | 3.60 |
| 6060 | 36.40 | 34.30 | 16.80 | 4.90 |
| 6080 | 38.20 | 35.90 | 17.90 | 6.30 |
| 6100 | 54.00 | 43.10 | 27.40 | 16.20 |
| 6250 | 47.40 | 46.00 | 22.30 | 4.90 |
| 6500 | 68.40 | 59.80 | 31.70 | 11.10 |
| 6750 | 86.80 | 70.70 | 39.50 | 16.50 |
| 6760 | 73.20 | 71.60 | 38.10 | 9.20 |
| 6770 | 71.50 | 69.00 | 38.20 | 10.50 |
| 6780 | 83.10 | 77.20 | 46.80 | 23.20 |
| 6790 | 96.50 | 82.10 | 54.50 | 25.80 |
| 6800 | 72.40 | 69.80 | 39.00 | 11.40 |
| 6810 | 95.40 | 82.30 | 51.80 | 27.60 |
| 6820 | 86.80 | 78.20 | 46.50 | 18.80 |
| 6830 | 96.90 | 93.10 | 55.70 | 16.80 |
| 6840 | 90.70 | 88.30 | 55.20 | 18.30 |
| 6850 | 90.40 | 87.80 | 53.10 | 19.00 |
| 6860 | 88.40 | 85.60 | 48.80 | 15.30 |
| 6870 | 202.80 | 189.90 | 112.80 | 41.90 |
| 6880 | 206.90 | 196.20 | 110.80 | 29.90 |
| 6890 | 195.70 | 186.00 | 105.40 | 34.90 |
| 6900 | 191.00 | 181.80 | 115.90 | 29.60 |
| 6910 | 222.40 | 216.80 | 123.80 | 29.20 |
| 6920 | 119.80 | 115.20 | 63.00 | 19.50 |
| 6930 | 130.60 | 126.40 | 71.00 | 21.00 |
| 6940 | 216.40 | 209.10 | 115.10 | 31.20 |
| 6950 | 208.80 | 206.00 | 105.50 | 31.30 |
| 6960 | 229.30 | 217.40 | 160.80 | 93.20 |
| 6970 | 243.60 | 235.60 | 139.20 | 54.30 |
| 6980 | 261.90 | 256.60 | 143.20 | 45.60 |
| 6990 | 254.40 | 248.90 | 137.30 | 44.70 |
| 7000 | 270.30 | 263.10 | 140.20 | 47.90 |
| 7010 | 273.30 | 266.30 | 152.50 | 58.90 |
| 7020 | 253.80 | 248.20 | 134.10 | 47.10 |
| 7030 | 254.80 | 246.40 | 136.40 | 52.50 |
| 7040 | 297.10 | 284.90 | 167.30 | 74.30 |
| 7050 | 269.30 | 263.90 | 142.50 | 48.40 |
| 7100 | 322.90 | 319.40 | 182.30 | 88.50 |
| 7150 | 233.90 | 223.10 | 139.50 | 77.40 |
| 7200 | 165.10 | 164.30 | 98.60 | 40.00 |
| 7250 | 7.60 | 7.30 | 4.60 | 3.10 |
| 7300 | 7.20 | 7.00 | 4.30 | 2.90 |