C:\DATA\FERNANDO FEE 32D.LAS

# WELL ANALYSIS CORPORATION

**AUDIO DETECTION SURVEY**

FILING NO.

COMPANY: SOUTHERN CALIF. GAS CO.
WELL: FERNANDO FEE 32D
FIELD: ALISO CANYON
COUNTY: LOS ANGELES    STATE: CALIFORNIA
LOCATION: DISTRICT 2    OTHER SVC:
API NUMBER: 0403721356
SEC: 27    TWN: 3N    RNG: 16W
CB

PERMANENT DATUM: GROUND LEVEL    ELEV: 1995.00 FT.
LOG MEASURED FROM KB 15' ABOVE PERM DATUM
DRILLING MEASURED FROM

-ELEVATIONS-
KB: 2010.00 Ft.
DF: Ft.
GL: 1995.00 Ft.

| | | PRESSURE | FLOWING | INJECTION | SHUT-IN |
|---|---|---|---|---|---|
| DATE LOG RAN | 03-10-2016 | TUBING PSI | | | 1064 |
| RUN NUMBER | ONE | CASING PSI | | | 587 |
| EFFECTIVE DEPTH | 7265' PLUG | | | | |
| PICKUP DEPTH | 7114' | INJECTION RATE | N/A | | |
| BOT LOGGED INT | 7114' | 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 | N/A | | | | |
| WELL STATUS | STATIC | PRODUCTION DATA | | | |
| MAX TEMPERATURE | 155.1 F. | OIL Gr. | OIL = | | |
| AT DEPTH | 7020.5' | GAS Gr. | GAS= | | |
| TEMPERATURE SENS | 1 F/DIV. | MPP | BHP = | | |
| LOGGING SPEED | 100 FPM | | WATER= | | |
| RECORDED BY | S. MACIAS | | | | |
| WITNESSED BY | E. BLEVINS | | | | |
| email to | A. KARGAR | | | | |
| DEPTH CORRELATION | PACKER | | | | |

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**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 10.0'

**Remarks/Survey Results**

12:00 PM - ON LOCATION
01:03 PM - RAN IN HOLE
01:03 PM - BEGIN SURVEY

SAND TAG MARKERS: 6846' TOP MP
7115' TOP S1
7191' TOP S4
7268' TOP S8

**CASING AND TUBING RECORD**

| SIZE | WT(#) | FROM | TO | SIZE | WT(#) | FROM | TO |
|---|---|---|---|---|---|---|---|
| 13.375" | 48.0 | SURFACE | 818' | | | | |
| 8.625" | 36.0 | SURFACE | 7358' | | | | |
| 4.500" | 11.6 | 7119.9' | 7241' | | | | |
| 2.875" | 6.5 | SURFACE | 7047' | | | | |

| STR. | PIPE DIA. | PERFORATIONS |
|---|---|---|
| A | 4.500" | 7169'-7239'. |
| | | PACKERS: 7032.2'-7040.1'. |
| | | GAS LIFT MANDREL: 6919.6'-6925.9'. |
| | | SLIDING SLEEVES: 6959'-6962.1'. |
| | | NO-GO: 6993.2', 7116.2'. |
| | | STAGE COLLARS: 1995.9'. |

Audio Data: c:\data\noise.txt

| DEPTH | 200HZ | 600HZ | 1000HZ | 2000HZ |
|---|---|---|---|---|
| 50 | 9.00 | 8.50 | 4.50 | 2.80 |
| 150 | 9.20 | 8.70 | 4.70 | 2.90 |
| 400 | 8.70 | 8.30 | 4.40 | 2.70 |
| 650 | 8.70 | 8.40 | 4.40 | 2.70 |
| 900 | 7.70 | 7.40 | 3.90 | 2.40 |
| 1150 | 8.50 | 8.00 | 4.10 | 2.40 |
| 1400 | 8.80 | 8.40 | 4.40 | 2.70 |
| 1650 | 8.90 | 8.60 | 4.60 | 2.80 |
| 1900 | 8.80 | 8.40 | 4.50 | 2.80 |
| 1920 | 8.70 | 8.40 | 4.40 | 2.70 |
| 1940 | 8.80 | 8.40 | 4.50 | 2.80 |
| 1960 | 9.50 | 9.20 | 4.70 | 2.80 |
| 1980 | 8.60 | 8.20 | 4.40 | 2.80 |
| 2000 | 8.30 | 8.00 | 4.30 | 2.80 |
| 2180 | 8.70 | 8.40 | 4.50 | 2.80 |
| 2200 | 8.70 | 8.40 | 4.60 | 2.90 |
| 2220 | 8.70 | 8.20 | 4.40 | 2.80 |
| 2240 | 9.10 | 8.50 | 4.50 | 2.80 |
| 2260 | 9.80 | 9.30 | 4.80 | 2.90 |
| 2280 | 8.60 | 8.30 | 4.40 | 2.80 |
| 2300 | 8.90 | 8.50 | 4.60 | 2.80 |
| 2320 | 8.90 | 8.60 | 4.80 | 3.00 |
| 2340 | 10.30 | 9.70 | 5.10 | 3.00 |
| 2360 | 8.90 | 8.60 | 4.50 | 2.70 |
| 2380 | 8.50 | 8.30 | 4.40 | 2.70 |
| 2400 | 9.10 | 8.80 | 4.60 | 2.70 |
| 2420 | 9.20 | 8.90 | 4.60 | 2.80 |
| 2440 | 8.70 | 8.40 | 4.50 | 2.80 |
| 2460 | 8.20 | 7.90 | 4.40 | 2.90 |
| 2480 | 9.70 | 9.30 | 4.90 | 2.90 |
| 2500 | 9.50 | 9.20 | 4.80 | 2.90 |
| 2520 | 10.90 | 9.00 | 4.90 | 2.90 |
| 2540 | 10.30 | 9.10 | 5.00 | 2.90 |
| 2560 | 10.50 | 9.90 | 5.40 | 3.30 |
| 2580 | 11.50 | 9.20 | 5.20 | 3.30 |
| 2600 | 10.00 | 9.20 | 5.00 | 3.10 |
| 2800 | 9.90 | 9.50 | 5.00 | 2.90 |
| 3050 | 9.60 | 8.30 | 4.50 | 2.90 |
| 3300 | 10.10 | 9.20 | 5.00 | 3.00 |
| 3550 | 6.40 | 6.20 | 3.50 | 2.20 |
| 3800 | 7.50 | 7.10 | 4.20 | 2.80 |
| 4050 | 7.50 | 7.10 | 4.20 | 2.90 |
| 4300 | 7.40 | 7.10 | 4.20 | 2.80 |
| 4550 | 7.30 | 7.10 | 4.20 | 2.80 |
| 4800 | 7.30 | 7.10 | 4.20 | 2.80 |
| 5050 | 7.30 | 7.00 | 4.20 | 2.80 |
| 5300 | 7.20 | 7.00 | 4.20 | 2.80 |
| 5320 | 7.20 | 7.00 | 4.20 | 2.80 |
| 5340 | 7.30 | 7.00 | 4.20 | 2.80 |
| 5360 | 7.30 | 7.00 | 4.20 | 2.80 |
| 5380 | 7.20 | 7.00 | 4.20 | 2.80 |
| 5400 | 7.30 | 7.10 | 4.40 | 3.00 |
| 5420 | 7.10 | 6.90 | 4.20 | 2.80 |
| 5440 | 7.50 | 7.10 | 4.20 | 2.80 |
| 5460 | 7.30 | 7.10 | 4.20 | 2.80 |
| 5480 | 7.70 | 7.10 | 4.20 | 2.80 |
| 5500 | 7.30 | 7.00 | 4.20 | 2.90 |
| 5520 | 7.50 | 7.00 | 4.20 | 2.90 |
| 5540 | 7.30 | 7.00 | 4.20 | 2.90 |
| 5560 | 7.20 | 7.00 | 4.20 | 2.90 |
| 5580 | 7.20 | 7.00 | 4.20 | 2.90 |
| 5600 | 7.20 | 7.00 | 4.20 | 2.90 |
| 5620 | 7.10 | 6.90 | 4.20 | 2.90 |
| 5640 | 7.30 | 7.00 | 4.30 | 3.00 |
| 5660 | 7.20 | 7.10 | 4.20 | 2.90 |
| 5680 | 7.20 | 7.00 | 4.20 | 2.80 |
| 5700 | 7.20 | 7.00 | 4.20 | 2.80 |
| 5720 | 7.40 | 7.10 | 4.20 | 2.80 |
| 5740 | 7.30 | 7.10 | 4.30 | 3.00 |
| 5760 | 7.10 | 7.00 | 4.20 | 2.80 |
| 5780 | 7.10 | 6.90 | 4.20 | 2.80 |
| 5800 | 7.10 | 6.90 | 4.10 | 2.80 |
| 5820 | 7.40 | 7.10 | 4.30 | 2.90 |
| 5840 | 7.10 | 6.90 | 4.20 | 2.90 |
| 5860 | 7.20 | 7.00 | 4.20 | 2.80 |
| 5880 | 7.60 | 7.10 | 4.30 | 2.90 |
| 5900 | 7.50 | 7.00 | 4.20 | 2.90 |
| 5920 | 7.10 | 7.00 | 4.10 | 2.80 |
| 5940 | 7.30 | 7.10 | 4.10 | 2.70 |
| 5960 | 6.80 | 6.60 | 3.90 | 2.70 |
| 5980 | 7.30 | 7.00 | 4.20 | 2.80 |
| 6000 | 7.10 | 7.00 | 4.20 | 2.90 |
| 6020 | 7.20 | 6.90 | 4.30 | 3.00 |
| 6040 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6060 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6080 | 7.10 | 7.00 | 4.20 | 2.90 |
| 6100 | 7.00 | 6.80 | 4.20 | 2.90 |
| 6120 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6140 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6160 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6180 | 7.20 | 6.90 | 4.20 | 2.90 |
| 6200 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6220 | 7.00 | 6.80 | 4.20 | 2.90 |
| 6240 | 7.30 | 7.00 | 4.30 | 3.00 |
| 6260 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6280 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6300 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6320 | 7.50 | 7.00 | 4.40 | 3.00 |
| 6340 | 7.50 | 7.10 | 4.50 | 3.10 |
| 6360 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6380 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6400 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6500 | 7.20 | 7.00 | 4.30 | 2.90 |
| 6600 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6700 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6800 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6810 | 7.20 | 7.00 | 4.20 | 2.80 |
| 6820 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6830 | 7.00 | 6.80 | 4.20 | 2.90 |
| 6840 | 7.50 | 6.90 | 4.20 | 2.90 |
| 6850 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6860 | 7.00 | 6.90 | 4.20 | 2.90 |
| 6870 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6880 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6890 | 7.10 | 6.90 | 4.30 | 3.00 |
| 6900 | 7.60 | 7.20 | 4.50 | 3.10 |
| 6910 | 7.10 | 6.90 | 4.20 | 2.90 |
| 6920 | 8.70 | 7.90 | 4.90 | 3.30 |
| 6930 | 7.60 | 7.20 | 4.60 | 3.20 |
| 6940 | 7.60 | 7.20 | 4.60 | 3.10 |
| 6950 | 7.50 | 7.30 | 4.50 | 3.00 |
| 6960 | 7.00 | 6.80 | 4.20 | 2.90 |
| 6970 | 9.50 | 8.20 | 5.20 | 3.10 |
| 6980 | 7.00 | 6.80 | 4.10 | 2.80 |
| 6990 | 9.30 | 8.70 | 6.20 | 3.90 |
| 7000 | 14.20 | 8.40 | 5.40 | 3.60 |
| 7010 | 18.00 | 11.40 | 8.40 | 4.80 |
| 7020 | 16.10 | 12.30 | 9.90 | 5.60 |
| 7030 | 18.30 | 12.10 | 7.90 | 4.50 |
| 7040 | 28.40 | 14.00 | 10.00 | 5.90 |
| 7060 | 7.00 | 6.90 | 4.20 | 2.90 |
| 7070 | 24.00 | 16.80 | 13.70 | 7.20 |
| 7080 | 7.90 | 7.70 | 5.10 | 3.30 |
| 7090 | 7.60 | 7.10 | 4.40 | 3.00 |
| 7100 | 7.10 | 6.90 | 4.20 | 2.80 |
| 7114 | 7.10 | 7.00 | 4.10 | 2.80 |