# WELL ANALYSIS CORPORATION

## AUDIO DETECTION SURVEY

| | |
|---|---|
| WELL TYPE: | GS, OG |
| COMPANY: | SOUTHERN CALIF. GAS CO. |
| WELL: | STANDARD SESNON 6 |
| FIELD: | ALISO CANYON |
| COUNTY: | LOS ANGELES |
| STATE: | CALIFORNIA |
| LOCATION: | DISTRICT 2 |
| OTHER SVC: | |
| API NUMBER: | 0403700759 |
| SEC: 28 | TWN: 3N RNG: 16W |
| | AJ |

PERMANENT DATUM: GROUND LEVEL ELEV:
LOG MEASURED FROM MAT 0' ABOVE PERM DATUM
DRILLING MEASURED FROM

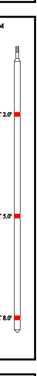
-ELEVATIONS-
KB: Ft.
DF: Ft.
GL: Ft.

| | | | | | |
|---|---|---|---|---|---|
| DATE LOG RAN | 04-21-2016 | PRESSURE | FLOWING | INJECTION | SHUT-IN |
| RUN NUMBER | ONE | TUBING PSI | | | 1306 |
| EFFECTIVE DEPTH | 9207' | CASING PSI | | | 1308 |
| PICKUP DEPTH | 8987' | INJECTION RATE | N/A | | |
| BOT LOGGED INT | 8987' | OBSERVED RATE | N/A | | |
| TOP LOGGED INT | 100' | 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 | 185 F. | OIL Gr. | | OIL = | |
| AT DEPTH | 8987' | GAS Gr. | | GAS= | |
| TEMPERATURE SENS | 1 F/DIV. | MPP | | BHP = | |
| LOGGING SPEED | 100 FPM | | | WATER= | |
| RECORDED BY | D. PROKUSKI | | | | |
| WITNESSED BY | N/A | | | | |
| EMAIL TO | A. KARGAR | | | | |
| DEPTH CORRELATION | MANDREL | | | | |

### 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

11:30AM ON LOCATION
11:45AM RAN IN HOLE
12:00PM BEGIN SURVEY
3:45PM PULL OUT OF HOLE
4:00PM OFF LOCATION
SAND TAG MARKERS: 8147' TOP MP
8320' TOP S1
8451' TOP S4
8564' TOP S8
8734' TOP HZ
8829' TOP FREW

### CASING AND TUBING RECORD

| SIZE | WT(#) | FROM | TO | SIZE | WT(#) | FROM | TO |
|---|---|---|---|---|---|---|---|
| 13.375" | 54.5 | SURFACE | 993' | 2.875" | 6.5 | SURFACE | 8233.4' |
| 9.625" | 47 | SURFACE | 4560' | 2.375" | 4.7 | 8233.4' | 8429' |
| 7.000" | 23 | SURFACE | 8444' | | | | |
| 5.000" | 17 | 8286' | 9207' | | | | |

| STR. | PIPE DIA. | PERFORATIONS |
|---|---|---|
| A | 7.000" | SQUEEZED: 8219'-8220' . |
| | 5.000" | 8466'-8470', 8494'-8532', 8568'-8574', |
| | | 8586'-8591', 8695'-8716', 8772'-8778', |
| | | 8695'-8716', 8772'-8778', 8816'-8936', |
| | | 8959'-8998', 9012'-9029', 9034'-9047', |
| | | 9052'-9064', 9067'-9079', 9087'-9093'. |
| | | PACKERS: 8422'-8429'. |
| | | GAS LIFT MANDRELS: 8120.5'-8132.6'. |
| | | SLIDING SLEEVES: 8164'-8168'. |
| | | NO-GO: 8199.4'. |

Audio Data: C:\data\NOISE.txt

| DEPTH | 200HZ | 600HZ | 1000HZ | 2000HZ |
|---|---|---|---|---|
| 100 | 13.50 | 6.60 | 3.70 | 0.80 |
| 120 | 89.20 | 23.30 | 12.70 | 5.00 |
| 140 | 74.30 | 17.30 | 10.70 | 4.30 |
| 160 | 79.40 | 26.60 | 13.50 | 3.50 |
| 180 | 102.00 | 31.10 | 31.10 | 15.20 |
| 200 | 55.60 | 16.60 | 9.00 | 2.10 |
| 220 | 95.00 | 32.30 | 14.10 | 3.60 |
| 240 | 47.30 | 12.50 | 7.70 | 1.70 |
| 260 | 53.20 | 14.00 | 8.60 | 1.50 |
| 280 | 14.80 | 6.70 | 3.70 | 0.80 |
| 300 | 13.60 | 6.40 | 3.70 | 0.80 |
| 320 | 13.70 | 6.40 | 3.70 | 0.80 |
| 340 | 14.10 | 6.40 | 3.70 | 0.70 |
| 360 | 14.20 | 6.40 | 3.70 | 0.70 |
| 380 | 13.90 | 6.30 | 3.70 | 0.90 |
| 400 | 13.80 | 6.30 | 3.60 | 0.90 |
| 420 | 13.80 | 6.30 | 3.70 | 0.90 |
| 440 | 13.60 | 6.30 | 3.70 | 0.90 |
| 460 | 13.10 | 6.20 | 3.70 | 0.90 |
| 480 | 13.40 | 6.30 | 3.70 | 0.90 |
| 500 | 13.20 | 6.30 | 3.70 | 0.90 |
| 750 | 13.10 | 6.20 | 3.60 | 0.90 |
| 850 | 13.20 | 6.30 | 3.70 | 0.90 |
| 900 | 13.10 | 6.30 | 3.70 | 0.90 |
| 920 | 13.20 | 6.30 | 3.70 | 0.90 |
| 940 | 13.20 | 6.30 | 3.60 | 0.90 |
| 960 | 13.10 | 6.30 | 3.70 | 1.00 |
| 980 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1000 | 13.30 | 6.40 | 3.70 | 0.90 |
| 1020 | 13.80 | 7.00 | 4.40 | 1.40 |
| 1040 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1060 | 13.20 | 6.30 | 3.70 | 0.80 |
| 1080 | 13.50 | 6.40 | 3.80 | 1.00 |
| 1100 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1250 | 13.40 | 6.50 | 4.10 | 1.40 |
| 1500 | 13.30 | 6.30 | 3.70 | 0.90 |
| 1520 | 13.20 | 6.40 | 3.80 | 0.90 |
| 1540 | 13.00 | 6.30 | 3.70 | 0.90 |
| 1560 | 13.10 | 6.20 | 3.60 | 0.90 |
| 1580 | 13.60 | 6.40 | 3.80 | 1.00 |
| 1600 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1620 | 13.10 | 6.30 | 3.70 | 0.90 |
| 1640 | 13.10 | 6.30 | 3.70 | 0.90 |
| 1660 | 12.90 | 6.30 | 3.70 | 0.90 |
| 1680 | 13.00 | 6.30 | 3.70 | 0.90 |
| 1700 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1720 | 13.10 | 6.30 | 3.70 | 0.90 |
| 1740 | 13.10 | 6.30 | 3.70 | 0.90 |
| 1760 | 13.10 | 6.30 | 3.70 | 0.90 |
| 1780 | 13.10 | 6.30 | 3.70 | 0.90 |
| 1800 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1820 | 13.10 | 6.20 | 3.60 | 0.80 |
| 1840 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1860 | 13.00 | 6.30 | 3.70 | 0.90 |
| 1880 | 13.10 | 6.30 | 3.70 | 0.90 |
| 1900 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1920 | 13.20 | 6.30 | 3.70 | 0.90 |
| 1940 | 13.00 | 6.30 | 3.70 | 0.90 |
| 1960 | 13.30 | 6.30 | 3.70 | 0.90 |
| 1980 | 13.10 | 6.30 | 3.70 | 0.90 |
| 2000 | 13.20 | 6.30 | 3.70 | 0.90 |
| 2020 | 13.20 | 6.40 | 3.80 | 0.90 |
| 2040 | 13.10 | 6.40 | 3.80 | 0.80 |
| 2060 | 13.10 | 6.40 | 3.80 | 0.80 |
| 2080 | 13.20 | 6.30 | 3.70 | 0.80 |
| 2100 | 13.00 | 6.30 | 3.70 | 0.80 |
| 2120 | 13.00 | 6.30 | 3.70 | 0.90 |
| 2140 | 13.10 | 6.30 | 3.70 | 0.80 |
| 2160 | 13.20 | 6.50 | 3.90 | 1.00 |
| 2180 | 13.20 | 6.40 | 3.80 | 0.90 |
| 2200 | 13.10 | 6.30 | 3.70 | 0.80 |
| 2500 | 12.50 | 6.10 | 3.80 | 1.30 |
| 2750 | 12.80 | 6.20 | 3.70 | 1.10 |
| 3000 | 12.60 | 6.10 | 3.70 | 1.20 |
| 3250 | 12.60 | 6.20 | 3.70 | 1.00 |
| 3500 | 12.70 | 6.20 | 3.70 | 1.00 |
| 3750 | 12.70 | 6.20 | 3.70 | 1.00 |
| 4000 | 12.60 | 6.20 | 3.80 | 1.00 |
| 4250 | 12.50 | 6.10 | 3.70 | 1.10 |
| 4400 | 12.50 | 6.10 | 3.70 | 1.10 |
| 4420 | 12.50 | 6.10 | 3.70 | 1.10 |
| 4440 | 12.70 | 6.20 | 3.80 | 1.10 |
| 4460 | 12.50 | 6.10 | 3.70 | 1.10 |
| 4480 | 12.50 | 6.10 | 3.70 | 1.10 |
| 4500 | 12.70 | 6.20 | 3.80 | 1.10 |
| 4520 | 12.50 | 6.20 | 3.90 | 1.20 |
| 4540 | 12.50 | 6.20 | 3.80 | 1.20 |
| 4560 | 12.70 | 6.10 | 3.80 | 1.20 |
| 4580 | 12.60 | 6.20 | 3.80 | 1.20 |
| 4600 | 12.50 | 6.10 | 3.80 | 1.10 |
| 5000 | 12.60 | 6.20 | 3.80 | 1.10 |
| 5250 | 12.80 | 6.20 | 3.80 | 1.10 |
| 5500 | 12.30 | 6.10 | 3.80 | 1.10 |
| 5750 | 12.50 | 6.20 | 3.80 | 1.10 |
| 6000 | 12.40 | 6.20 | 3.80 | 1.10 |
| 6250 | 12.40 | 6.10 | 3.80 | 1.00 |
| 6500 | 12.80 | 6.30 | 3.90 | 1.10 |
| 6750 | 12.80 | 6.30 | 3.90 | 1.10 |
| 7000 | 12.80 | 6.30 | 3.90 | 1.10 |
| 7250 | 13.70 | 6.50 | 4.10 | 1.10 |
| 7500 | 15.30 | 7.30 | 4.90 | 1.30 |
| 7750 | 16.00 | 9.10 | 6.70 | 2.00 |
| 7800 | 15.60 | 9.70 | 7.10 | 2.10 |
| 7850 | 16.00 | 9.90 | 7.20 | 2.20 |
| 7900 | 15.80 | 10.20 | 7.70 | 2.40 |
| 7950 | 15.80 | 10.60 | 8.00 | 2.70 |
| 8000 | 16.10 | 10.60 | 8.30 | 2.90 |
| 8020 | 16.50 | 10.90 | 8.60 | 3.00 |
| 8040 | 16.20 | 10.80 | 8.00 | 2.90 |
| 8060 | 16.30 | 10.90 | 8.40 | 3.30 |
| 8080 | 16.10 | 11.10 | 8.70 | 3.40 |
| 8100 | 16.20 | 11.10 | 8.80 | 3.50 |
| 8110 | 16.10 | 11.00 | 8.80 | 3.40 |
| 8120 | 15.70 | 10.80 | 8.80 | 3.20 |
| 8130 | 18.10 | 13.30 | 11.00 | 4.90 |
| 8140 | 17.20 | 12.30 | 10.30 | 4.70 |
| 8150 | 17.60 | 12.20 | 10.10 | 4.70 |
| 8160 | 28.80 | 20.30 | 17.40 | 7.70 |
| 8170 | 26.30 | 19.20 | 15.30 | 7.10 |
| 8180 | 26.10 | 18.50 | 14.50 | 6.60 |
| 8190 | 25.90 | 18.50 | 14.60 | 6.50 |
| 8200 | 25.60 | 18.90 | 15.10 | 7.30 |
| 8210 | 25.40 | 18.30 | 14.50 | 6.70 |
| 8220 | 24.70 | 18.30 | 14.50 | 6.60 |
| 8230 | 34.30 | 26.30 | 22.10 | 10.90 |
| 8240 | 34.70 | 26.00 | 21.40 | 10.10 |
| 8250 | 32.90 | 25.20 | 20.50 | 9.50 |
| 8260 | 34.20 | 26.30 | 21.50 | 10.40 |
| 8270 | 34.80 | 26.20 | 21.80 | 10.40 |
| 8280 | 35.20 | 25.70 | 21.10 | 10.30 |
| 8290 | 35.60 | 26.30 | 21.90 | 10.80 |
| 8300 | 35.70 | 26.70 | 22.30 | 10.90 |
| 8310 | 34.90 | 26.50 | 22.00 | 10.90 |
| 8320 | 36.70 | 27.00 | 22.10 | 11.10 |
| 8330 | 34.40 | 26.10 | 21.80 | 11.00 |
| 8340 | 34.10 | 25.50 | 21.60 | 11.00 |
| 8350 | 34.40 | 26.60 | 22.50 | 11.10 |
| 8360 | 35.10 | 27.50 | 23.50 | 12.60 |
| 8370 | 32.50 | 25.40 | 21.50 | 11.00 |
| 8380 | 32.70 | 25.70 | 21.70 | 11.00 |
| 8390 | 34.20 | 27.00 | 23.50 | 12.60 |
| 8400 | 34.30 | 26.90 | 23.00 | 11.90 |
| 8410 | 36.80 | 28.90 | 24.90 | 13.50 |
| 8420 | 36.90 | 29.90 | 26.30 | 14.20 |
| 8430 | 27.50 | 23.50 | 21.40 | 14.20 |
| 8440 | 30.60 | 26.90 | 24.90 | 19.40 |
| 8450 | 28.80 | 25.30 | 23.10 | 18.20 |
| 8460 | 28.10 | 24.50 | 22.10 | 16.40 |
| 8470 | 27.30 | 23.70 | 21.50 | 15.90 |
| 8480 | 27.50 | 24.00 | 22.40 | 16.90 |
| 8490 | 27.00 | 23.20 | 21.20 | 15.60 |
| 8500 | 30.10 | 23.50 | 21.30 | 15.20 |
| 8600 | 130.80 | 94.20 | 82.00 | 62.00 |
| 8700 | 330.70 | 139.20 | 114.00 | 86.80 |
| 8800 | 223.50 | 97.50 | 69.10 | 46.50 |
| 8900 | 138.80 | 41.70 | 24.60 | 10.10 |
| 8987 | 45.50 | 18.90 | 8.40 | 1.50 |

1100 COLLAR LOCATOR 1835
60 TEMPERATURE [DEG F] 80
0.2 AUDIO DETECTION LOG (MV) 2000
-2 DIFFERENTIAL TEMPERATURE [DEG F] 2