# EPOCH WELL LOGGING, INC.

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|---|---|
| **COMPANY** | ARCO OIL and GAS CO. |
| **WELL** | CFI # 34-1-55 |
| **FIELD** | MIST |
| **LOCATION** | 1341'FW and 1551'FN from the SE corner of Section 1, T5N-R5W |
| **COUNTY, STATE** | Columbia, Oregon |
| **API WELL INDEX NO.** | |
| **ELEVATION** | 608'G.L. 616'K.B. |
| **DATES** | FROM 7-16-88 TO 7-18-88 |
| **DEPTHS** | FROM 45'K.B. TO 13707'K.B. |
| **SPUD DATE** | 7-16-88 |
| **DRILLING CONTRACTOR** | Paul Graham, Rig #4 |
| **MUD COMPANY** | Baroid |
| **LOGGING GEOLOGISTS** | John Day Jim Eastes |

**ABBREVIATIONS**

| | | | |
|---|---|---|---|
| NB | BIT | MW | MUD WEIGHT |
| RRB | RERUN BIT | VIS | FUNNEL VISCOSITY |
| RTB | RE-TIP BIT | PV | PLASTIC VISCOSITY |
| CB | CORE BIT | YP | YIELD POINT |
| T.G. | TRIP GAS | FL | FLUID LOSS (cc/30 min) |
| S.G. | SURVEY GAS | CL | PPM CHLORIDE ION |
| W.G. | WIPER GAS | RM | MUD RESISTIVITY |
| C.G. | CONNECTION GAS | RMF | FILTRATE RESISTIVITY |
| WOB | WEIGHT ON BIT | LAT | LOGGED AFTER TRIP |
| RPM | ROTARY REV/MIN | NR | NO RETURNS |
| PP | PUMP PRESSURE | PR | POOR RETURNS |
| SPM | STROKES/MIN | MUD TYPE | E-Z Mud |

**CASING RECORD**

| | | |
|---|---|---|
| 7" | AT | 472'K.B. |
| | AT | |
| | AT | |
| | AT | |

**HOLE SIZE**

| | | |
|---|---|---|
| 9 7/8" | AT | 476' |
| 6 1/4" | AT | 13707' |
| | AT | |
| | AT | |

SAND/SANDSTONE · CLAY · LIMESTONE · TUFF · LIGNITE
SHALE · DIATOMITE · DOLOMITE · FOSSIL · GLAUCONITE
SILTSTONE · CONGLOMERATE · BASALT · MICA · PYRITE

**OIL: BASED ON LIVE OIL IN UNWASHED CUTTINGS AND PERCENT STAINING AND FLUORESCENCE OF WASHED SAMPLES.**

## PENETRATION

DRILL RATE (FT/HR)
drilling data

DEPTH

LITHOLOGY

## ANALYSIS OF RETURNS

OIL: TRACE · STRONG TRACE · SHOW · STRONG SHOW

GAS — UNITS

DITCH — TOTAL GAS

CUTTINGS GAS

CALIBRATION 100 units = 2% methane by volume

CHROMATOGRAPH — PPM

METHANE, C-1, _____
ETHANE, C-2, .....
PROPANE, C-3, _____
BUTANES, C-4, 4
PENTANES, C-5, 5

## REMARKS

LITHOLOGIC DESCRIPTION
MUD PROPERTIES
SURVEYS, OTHER TEST DATA

Note: All carbides 500gm unless otherwise noted.
Note: All lith colors referenced to the GSA Rock Color Chart.

Example:
Occ.....c
Con.....C
Abund..s

Note: Modifiers in Accessory Mineral Column are referenced to the number of cuttings present in a standard sample tray:
Rare.....1-5 cuttings
Occasional.....5-10 cuttings
Common.....10+ cuttings
Abundant.....present thru entire sample.

Spud @ 2:05 pm, 7-16-88
BOP No. 1, 8-7/8"
Sec. 539, 436', 9¼ hrs.
No Detectable Ditch Gas
Ctgs Gas on 1X
Ditch and Ctgs Gas on 1X
C-1
Rm 1.95
Rmf 0.90
Sal 2350ppm
Ditch and Ctgs Gas on 1X
C-1
Rm 2.56
Rmf 3.00
Sal 1800ppm
CG 60u
(Pumps off 8 min)
CG 27u
WG 365u
Rm 1.87
Rmf 1.36
Sal 4150ppm
Survey @ 426', 0°45'
Note color chng w/sd
Ditch and Cuttings Gas 1X
CG 75u
CG 70u
435u Ditch Gas
Ditch on 10X
WG 610u Circ out
530u Ditch
Circ out MW 11.0
Ditch Gas 1X
CG 75u
CG 30u
WG 31u
Ditch and Ctgs gas on 1X
C-1
Rm 2.30
Rmf 1.61
Sal 3500ppm
310u Ditch Gas
Rm 1.95
Rmf 1.90
Sal 3000ppm
Driller's Depth 13707'K.B. @ TD

Wiper Run @ 2227'
Survey @ 4261', 0°45'
Note: Color chng to lt gry f/800' to 825' w/dist incr clay.
Carbide Lag 5.5 min @ 735', 245u
SPM #1-88, 1400 linear, 2 min dur.
Note: 1st occur forams @ 155-170'
Note: Modifiers in Accessory Mineral Column are referenced to the number of cuttings present in a standard sample tray:
Rare.....1-5 cuttings
Occasional.....5-10 cuttings
Common.....10+ cuttings
Abundant.....present thru entire sample.
Note: Clay bcms more gry blw 5301
Note: Color chng to lt gry f/800' to 825' w/dist incr clay.
Note: 1st occur forams @ 155-170'
Survey @ 4261', 0°45'
Carbide Lag 5.5 min @ 735', 245u
SPM #1-88, 1400 linear, 2 min dur.
Note: Well flowing @ 982'; shut-in well; raise MW to 10.8
Survey @ 982', 1°; Wipe Hole
Raise MW to 11.0
Wiper Run @ 2227'
Survey @ 4261', 0°45'
Driller's Depth 13707'K.B. @ TD