

HOLE SIZE CASING RECORD
 32" to 107' at 107'
 22" to 306' 16" at 295'
 14 3/4" to 670' 11 3/4" at 659'
 10 5/8" to 1519' at _____
 _____ to _____ at _____
 _____ to _____ at _____

LITHOLOGY SYMBOLS

Breccia	Tuff and tuff-breccia	Conglom.
Graywacke	Sandstone	Siltstone
Claystone	Limestone	Chert
Argillite	Dolomite	
Solution Deposit	Mineralized Zone	Granitic Rock
Intermed Igneous	Basic Igneous	Peridotite
Acidic Volcanic	Intermed. Volcanic	Basic Volcanic
Porphyry	Serpentine	Schist
		Gneiss
		ANHYDRITE

COMPANY UNOCAL GEOTHERMAL CO.
 WELL IMPERIAL IRRIGATION DISTRICT #10
 FIELD SALTON SEA
 COUNTY IMPERIAL STATE CALIFORNIA
 LOCATION T 12 S, R 13 E, SEC. 5
 ELEVATION - 230 FT. KB DF G
 CONTRACTOR/RIG LOFFLAND 125
 SPUD DATE 2/2/88 TD DATE 2/19/88
 TD 1519 FT. TRUE VERT DEPTH 1519 FT.
 BOTTOM HOLE LOCATION VERTICAL
 WELL STATUS OBSERVATION
 COMPANY REPRESENTATIVE DAVID ROHS
ALEX SCHREINER

ENTRIES-WATER/STEAM

LOG INTERVAL
 DATE LOGGED 2/2/88 to 2/19/88
 DEPTH LOGGED 80' to 1519'
 MUD DRILLING 80' to 1519'
 AIR DRILLING _____
 TEMPERATURE INSTRUMENT TYPE Thermocouple
 PRESSURE INSTRUMENT TYPE _____
 GAS TRAP-AGITATOR ELEC AIR
 LOG SCALE 1:600 UNIT NO. 317
 LOG PREPARED BY Ed Zifcheck, Jeff Smith
Bruce Vesterby

LOST CIRCULATION ZONES

SECONDARY MINERALS
 Q = QUARTZ R = PYRRHOTITE T = TOURMALINE
 C = CALCITE N = PREHNITE CH = CHLORITE
 P = PYRITE X = AXINITE
 E = EPIDOTE A = ACTINOLITE

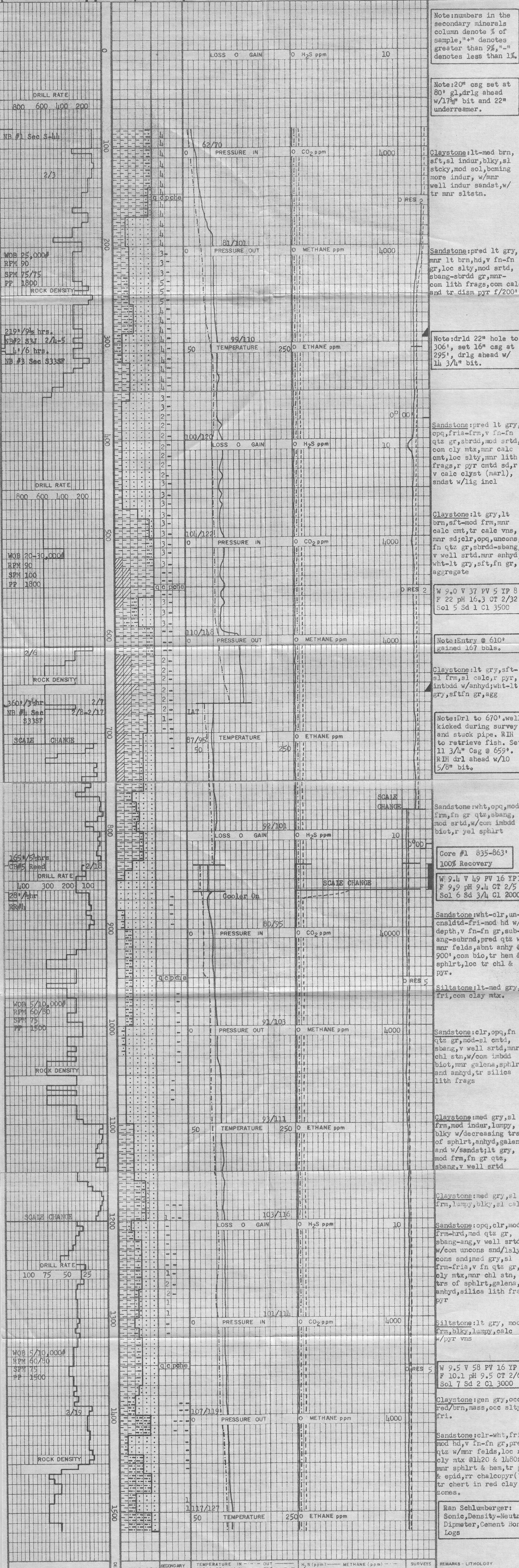
MB NEW BIT W MUD DENSITY ppm
 RRB RE-RUN BIT V FUNNEL VISCOSITY
 CB CORE BIT PV PLASTIC VISCOSITY
 WOB WEIGHT ON BIT YP YIELD POINT
 RPM REVS PER MINUTE F FILTER CAKE
 SPM STROKES PER MINUTE FC FILTER CAKE
 CFM CUBIC FT PER MINUTE SOL SOLIDS-%
 NR NO RETURNS SD SAND CONTENT-%
 C CARBIDE TEST S SALINITY-PPM Cl
 LAT LOGGED AFTER TRIP CA CALCIUM-PPM Ca
 BHT BOTTOM HOLE TEMPERATURE RM RESISTIVITY
 TC TIME SINCE CIRCULATION W WIRELINE LOG RUN
 CABING SHOE WATER/STEAM ENTRY
 CORED INTERVAL ORIFICE/FLOW TEST
 NO RECOVERY

DRILL RATE
 ft/hr min/ft
 m/hr min/m

TEMPERATURE °C °F
 IN --- OUT ---
 PRESSURE KSC PSI
 IN --- OUT ---
 LOSS/GAIN _____
 M BBLs

H₂S ppm _____
 CO₂ ppm _____
 METHANE ppm _____
 ETHANE ppm _____

SURVEYS
 in ---
 RESISTIVITY
 Δ-M
 out ---



Note: numbers in the secondary minerals column denote % of sample, "+" denotes greater than 9%, "-" denotes less than 1%.

Note: 20" csg set at 80' gl, drlg ahead w/17 1/2" bit and 22" underreamer.

Claystone: lt-med brn, sft, sl indur, blk, sl stcky, mod sol, becoming more indur, w/mnr well indur sandst, w/tr mnr siltstn.

Sandstone: pred lt gry, mnr lt brn, hd, v fn-fn gr, loc slty, mod srt, sbang-sbrdd gr, mnr-com lith frags, com calc and tr diss pyr f/200'

Note: drld 22" hole to 306', set 16" csg at 295', drlg ahead w/14 3/4" bit.

Sandstone: pred lt gry, opq, fria-fm, v fn-fn qtz gr, sbrdd, mod srt, com cly mtx, mnr calc cmt, loc slty, mnr lith frags, r pyr cmt, sd, r v calc clyst (marl), sandst w/lig incl

Claystone: lt gry, lt brn, sft-mod frm, mnr calc cmt, tr calc vns, mnr sd; clr, opq, uncons, fn qtz gr, sbrdd-sbang, v well srt, mnr anhyd; wht-lt gry, sft, fn gr, aggregate

Note: Entry @ 610' gained 167 bbls.

Claystone: lt gry, sft-sl frm, sl calc, r pyr, intbdd w/anhyd; wht-lt gry, sft, fn gr, agg

Note: Drl to 670', well kicked during survey and stuck pipe. RIH to retrieve fish. Set 11 3/4" Csg @ 659'. RIH drl ahead w/10 5/8" bit.

Sandstone: wht, opq, mod frm, fn gr, qtz, sbang, mod srt, w/com imbd biot, r yel sphrt

Core #1 835-863' 100% Recovery

W 9.4 V 49 PV 16 YP 12 F 9.9 pH 9.4 CT 2/5 Sol 6 Sd 3/4 Cl 2000

Sandstone: wht-clr, unconsldtd-fri-mod hd w/depth, v fn-fn gr, subang-subrd, pred qtz w/mnr felds, abnt anhy @ 900', com bio, tr hem & sphrt, loc tr chl & pyr.

Siltstone: lt-med gry, fri, com clay mtx.

Sandstone: clr, opq, fn qtz gr, mod-sl cmt, sbang, v well srt, mnr chl stn, w/com imbd biot, mnr galena, sphrt and anhyd, tr silica lith frags

Claystone: med gry, sl frm, mod indur, lumpy, blk w/decreasing trs of sphrt, anhyd, galena and w/sandst; lt gry, mod frm, fn gr qtz, sbang, v well srt

Claystone: med gry, sl frm, lumpy, blk, sl calc

Sandstone: opq, clr, mod frm-srd, med qtz gr, sbang-ang, v well srt, w/com uncons snd/lily cons and; med gry, sl frm-fria, v fn qtz gr, cly mtx, mnr chl stn, trs of sphrt, galena, anhyd, silica lith frag, pyr

Siltstone: lt gry, mod frm, blk, lumpy, calc w/pyr vns

Note: W 9.5 V 58 PV 16 YP 12 F 10.1 pH 9.5 CT 2/6 Sol 7 Sd 2 Cl 3000

Claystone: gen gry, occ red/brn, mass, occ slty, fri.

Sandstone: clr-wht, fri-mod hd, v fn-fn gr, pred qtz w/mnr felds, loc red cly mtx @ 120 & 1480ft, mnr sphrt & hem, tr pyr & epid, rr chalcopyr(?), tr chert in red clay zones.

Ran Schlumberger: Sonic Density-Neutron Dipmeter, Cement Bond Logs