GLO4353_2

EXLOG SMITH — R.F. SMITH CORP.

GEOTHERMAL DIVISION

GEOTHERMAL DATA LOG

COMPANY: GEO Operator Corporation
WELL: Prati#27 Redrill #1
FIELD: Geysers
COUNTY: Sonoma STATE: California
LOCATION: 797'S&84.8'W of NW corner Sec36 T12N R9W
ELEVATION: 3223.1' + 29' KB [X] DF [ ] GL [ ]
CONTRACTOR/RIG: Loffland Brothers #306
SPUD DATE: 4/2/86 TD DATE: 6/30/86
TD: 8690' TRUE VERT DEPTH: 8566.80'
BOTTOM HOLE LOCATION: 886.54 S, 133.99 E
WELL STATUS: on bleed
COMPANY REPRESENTATIVE: S. Hopkins, M. Crumb, R. Donnelley, D. Johnson

LOG INTERVAL
DATE LOGGED: 6/11/86 to 7/4/86
DEPTH LOGGED: 6032' to 8690'
MUD DRILLING: 6032-6248'
AIR DRILLING: 6248-8690'
TEMPERATURE INSTRUMENT TYPE: T-Thermocouple
PRESSURE INSTRUMENT TYPE: Silicon Chip
GAS TRAP-AGITATOR ELEC [ ] AIR [X]
LOG SCALE: 1:600 UNIT NO.: 319
LOG PREPARED BY: C. Hultgren, D. Serr, J. Hickey, D. Drimmel

HOLE SIZE		CASING RECORD	
to		30"	at 67'
26"	to 286'	22"	at 280'
20½"	to 2625'	16"	at 2619'
14 3/4	to 7149'	11 3/4"	at 7095'
10 5/8	to 9826'		at
RD#1 10 5/8" f/ 6032'	to 8690'		at

ENTRIES-WATER/STEAM

6843'	33#
7274'	35#
7325'	10#
7590'	6#
8233'	85#
8396'	48#

* = TESTED ZONES

LOST CIRCULATION ZONES
6210-6240' 60bbls

MISC. REMARKS
mill window in 11 3/4" csg and sidetrack f/6032'.
final mass flow= 199,000#/hr

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

SECONDARY MINERALS
Q = QUARTZ, C = CALCITE, P = PYRITE, E = EPIDOTE, S = Sulfides, O = Other, T = Tourmaline, A = Actinolite

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

DRILL RATE ft./hr [X] min/ft [ ] m/hr [ ] min/m [ ]; ROCK DENSITY (g/cc); DEPTH; LITHOLOGY; SECONDARY MINERALIZATION; TEMPERATURE °C [ ] °F [X] IN — OUT; PRESSURE KSC [ ] PSI [X] IN — OUT; LOSS/GAIN M³ [ ] BBLS [X]; H_2S ppm; CO_2 ppm; METHANE ppm; ETHANE ppm; SURVEYS; RESISTIVITY Ω-M; LITHOLOGY DESCRIPTION AND REMARKS

Note: Mill out window in 11 3/4" csg f/6029'-6070', set cmt plug below @ 6119', kick-off using dyna-drill & Teleco, building shoulder f/6032', Drlg 10 5/8"

Graywacke: lt gry-dk gry (N7-N3), mg-vfg pred fg, gd gr bndrs, silic mtx, hd-v hd, tr disem pyr.

Argillite: Gry blk-blk (N2-N1), sl phyllitic sheen, m hd, com calc vng.

Siltstone: gryish blk (N2), mas, platy, occ lam, brit-m hd.

Clay: dk gry (N3) stky, silky luster, grity.
W 65 V 46 PV 23 YP 14 pH 11 F 19.2 CT 3/32 S 200 SD tr SOL 3.5

Note: Lost approx 60bbls f/6210-40'.

Graywacke: lt gry-dk gry (N7-N3), mg-vfg pred fg, fr-gd gr bndrs, com-abunt qtz vng, silic mtx, hd-v hd, loc grn casts.

Siltstone: med dk gry (N4), occ platy genly mas, hd-mod hd, sl silic, com disem pyr.

Argillite: gryish blk-blk (N2-N1), brit-mod hd, occ milky calcite vng.

Graywacke: lt gry-dk gry (N7-N3), cg-fg pred mg, gd gr bndrs, abunt qtz vng, tr epid, tr Greenstone.

Graywacke: med-med dk gry (N4-N5) hd, pred med gr, incr argillaceous w/ depth, fair-indist gr bndrs, occ detrital epid, wk foli, com-abnt wht-clr calc vng, occ mky wht silic vng, gd tr pyr, tr prehnite, tr dk grn mafics.

Siltstone: med dk gry (N4) hd, silic, sl rexln, loc phyl, grdg to Argillite, silty in pt.

Greenstone: pale grn, mottled wht/grn, calc vugs, glassy.

Note: Change CO_2 scale @6650', 0-40,000ppm.

Graywacke: v lt gry-m dk gry (N7-N4), cse-fg pred mg, fr-gd gr bndrs, wk fol, silic mtx, hd-v hd, com-abunt qtz vng.

Siltstone: m dk gry-dk gry (N4-N3), silic mtx, mod hd- hd, loc-abunt disem pyr, tr epid, tr prehnite, tr pos axin.

Note: Steam Entry @ 6843'. 33# incr, 38°F temp incr. Gradual methane & CO2 incr.

Graywacke: m dk gry-m gry (N4-N5), pred gd gr bndrs, hd, sil mtx, w/com qtz vng & abundt dissm pyr. w/Siltstone: genly dk gry (N3), mod hd, blky, rough texture, w/com tr pos preh.

Note: All gas values were carried f/7060'-t/7229' while gas chromatograph was checked for proper calibration.

Graywacke: m dk gry-m lt gry (N4-N6), hd, sil mtrx, gd gr bndrs, pred fg, wl srtd, w/ abundt dissm pyr & qtz w/ Siltstone: genly dk gry (N3), cont blocky, mass, rough texture w/ abundt dissm pyr, tr possible preh.

Note: Steam Entry @ 7274'. 35# incr, 9°F temp incr. methane & CO2 incr.

Note: Steam Entry @ 7325'. 10# incr, 1°F temp incr. stable methane & CO2.

Graywacke: lt gry-m lt gry (N6-N7), mg-vfg pred mg, pr-fr gr bndrs, silic mtx, hd-v hd, genly disagg & bleached in app.

Siltstone: dk gry-gryish blk (N3-N2), mas, brit-hd, occ mg lithic grs.

Graywacke: m gry-m lt gry (N5-N6), hd-v hd, sil, fr-ind gr bndrs, blched, w/Siltstone: dk gry (N2), mass, abundt dissm pyr, w/tr amts epid & preh.

Note: Steam Entry @ 7590'. 6# incr. 22°F gradual temp incr. methane & CO2 incr.

Graywacke: m dk gry-lt gry (N4-N7), becmg lter w/depth, v silic, gd gr bndrs, loc ind gr bndrs com milky and clear qtz, abundt dissm pyr, tr epid w/Siltstone: dk gry (N3), hd, mass, silic, loc sandy, sl phyllitic appear.

Graywacke: m dk gry-lt gry (N4-N7), v silic, hd, gd-fr gr bndrs, com abndt clear qtz, tr dissm pyr w/Siltstone: dk gry (N3), hd, loc sand sl phyllitic scheen.

Graywacke: yelish gry - m lt gry (5YR 7/2-N7), fg-vfg, gd gr bndrs, silic mtx, hd-v hd, abnt disagg silic material.

Siltstone: dk gry-gryish blk (N3-N2), mod hd-hd, genly mas, occ vfg sand, vfg disem pyr, grdg to Argillite: gryish blk-blk (N2-N1), angular & elongated shape, mod hd, dk blk sheen, abunt sub hedral epid.

Graywacke: v lt wht-brnish gry (N8-5YR 2/1), mg-vfg pred fg, gd gr bndrs, silic mtx, com epid xstals, com mlky wht qtz, tr prehnite.

Graywacke: m gry-lt gry (N5-N7), loc yel cast, pred gd gr bndrs, hd, v silic, tr clear qtz, tr epid, poss(?) tr preh Siltstone: cont a/a. w/ tr Argillite.

Note: Steam Entry @ 8233'. Initial 50#, 5°F incr. Stabilized @ 85#, 14°F incr. Slight CO_2 & CH_4 gas kick.

Graywacke: v lt gry-lt gry (N7-N6), fg-vfg, gd gr bndrs, silic mtx, v hd, com mlky wht qtz, com epid.

Note: Steam Entry @ 8396'. 48# incr. 7°F temp incr. 1000ppm CH_4 gas kick.

Graywacke: m lt gry-v lt gry (N6-N8), vfg-loc ind gr grs, hd, v silic w/ tr pyr & com epid.

Graywacke: v lt wht - lt gry (N7-N6), fg-vfg, gd-fr gr bndrs, silic mtx, hd-v hd, genly disagg qtz grs, com epid.

Siltstone: m dk gry (N4), mas, com redish orange staining, lt grn preh, grdg to Argillite: gryish blk (N2), angular, platy, mod hd-hd.

T.D. @ 8690', run wire line logs, Flow test well for 8 hrs, orifice size: 6", temp: 360°F, psig: 150, mass flow: 199,000#/hr, H_2S: 884 ppm.

REMARKS - LITHOLOGY
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