

LANNY R. FREEMAN
ENGINEER/OLYMPIC PETROLEUM

ENGINEERING REPORT
COMPLETION LOGAN 1-A

GENERAL BACK GROUND FOREMAT:

Hole 12 $\frac{1}{4}$ " Surface

600.82 FT 8-5/8 Surface Cond.

2306.40 FT 4 $\frac{1}{2}$ " Casing

1134.80 Ft Dowell Class "C"

Cement with Central - Stabilizer/No Scraper

2270 Ft - Caseel T.D. - Dowell

Cement guide shoe - 3-25/32

Vanes installed - pressure to steel 3000 psi-Heads up

Purpose: Complete-dual channel induction well-through two non-cross
channeled production zones:

Zones: San Andres 1106 ft.Top

Yeso - 1608 - Top

Procedure: Yeso - objective

Perforate 2184-94 ft - 20 shots

2174-80 ft - 12 shots

Schlumberger Hyper-Jet 3-3/8"

Full Slant Gun - 2 shots

Per foot - Total 32 Shots

Acidizing procedure attached-500 gal. 20% HCL, inverted emulsion slurry 32 viscosity -
per induction ratio .841/ neutral lime. Flush 800 lb. KCL to protect formation face -
3.2% induction water, formation-pressure-formulated-1200 psi - actual pressure to
break - face 1180 psi - Top induced pressure allowed-1500 psi - shut in pressure -
No/Casing load - 1000 psi / 5 min. Average Tail Load pressure-1127 psi - final stage
Injection Retort Rate 2 BBLS/min Non-turbulant inductive flow seam, clean,

Rig up swab machine - Enter hole with 2-3/8 ~~EU~~ 8 Rd - tubing with Baker "R" model -
J - Hy packer with 56.22 ft. Tail pipe - By - Pa & J-neutral. Set packer into 4 $\frac{1}{2}$ " 9.5# casing
and pressure test 1800 psi. Packer location 2160 - Tail pipe 56.22 Ft $\rightarrow$ 2216.22 $\leftarrow$
Casing volume 23.3 BBLS - Tubing volume 8.42 BBLS - Distance to U Tube - Surface
to Dowell Flange shoe-54 feet.

SWAB machine-tagged fluid level at 58 ft - pass #1 800 ft to surface/mandrel approx 3.8 BBL .
to surface-KCL-Acid flush - 12 runs total hole SWAB-dry, no induced returns.

Fracturing: 240 BBLs/10,000 GAL, 4500 lbs 20/40 mesh sand -
7000 lbs 10/20 mesh sand

Remove tail pipe, reset packer 2160 ft - Open J-Type by-Pass
Complete fracture -
10 BBL/min. induction rate
34 viscosity, average pressure
1917 psi - shut in 1200 psi
10/min - 1100 psi
No effect, swab dry-6 runs

San Andres:

Schlumberger - Hyper-Jet
3-3/8" 1306 - 21, 2 shots/ft 30 shots
1284 - 92, 2 shots/ft 16 shots
1300 - 04, 2 shots/ft 8 shots
54 Total

Two trips, no mis-fires -
Run #1-1306-21 lost gun port cover pulled 2000 ^{ft.}/k cable tension - sheer pin parted at
217 ft. Going to 1350 FT, Top of guide Vane on Baker Bridge Plug,

Re-entered Home-Run #2, Complete Perforating Gun #2-24/shots

Fish gun control, head 2.31 in. Dia. with over shot-Got Fish 1st Trip on tubing.

Re-entered Hole - tension packer set at 1224 ft. J-in neutral. Pack off head - Ready to treat.

Acid job-250 gal, 15% HCL formation head broken and badly fragmented - hole full of shales - cross channeled-communication induced - could not go beyond 320 ft with swab machine-solid tested fresh water.

Chemical breakdown

Calcium - 914 ppm
Chloride - 620 ppm
Bav. Sol. - 160 ppm
Drill Sol. - 2.18 per.
Acid HCL - 3.60 per.
KCL - 1.02 per.

Report test WL - NEG
No oil or Hy-Carbon Present
End operations - prepare to plug - ret. casing & packer.

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