

Booth Steam Project

Location: Sec. 18, TWP25S, RNG21E

Flood Pattern: Inverted 5-Spot

Well Spacing: 330' (producer to producer) center injector
total 2.5 acre pattern, $\frac{1}{2}$ acre spacing.

Wells to follow:

Ave. permeability for

11, 12, 15, 16, 18,

Booth #11: Drilled October 13, 1976, 4.5" casing from surface to TD (803.8'), perforated with 17 shots from 751' to 767'. Core analysis indicated:

Average Permeability	119.5 md
Average Porosity	25.2%
Average Percent Oil Saturation	55%
Average Percent Water Saturation	35.7%
Average Oil Content	1,077 bbl/ac-ft
Total Oil Content	20,360 bbl/ac

A total of 18.9' of permeable oil sand.

10/7/80 Inexco ran a line to check for fill, found bottom at 801'.

12/8/80 Ran CBL (excellent bond)

5/19/81 Break well down with frac truck - broke at 1000 psi - pump-in rate 18 BPM at 500 psi - SI on vacuum.

5/25/81 Ran SML - TD 792'.

5/28/81 Ran 769' - 2-7/8" EUE - ABC MOD tubing.

7/9/81 3:00 PM - no preheat, start injection w/steam at slow rate for first 2 hrs.

7/12/81 10:23 PM - SI on injection for 69 hrs.

WHP before inj.=0 @ 3:00 PM 7/9/81

(after 6 hrs) WHP=425 psi @ 9:40 PM 7/9/81

WHP=580 psi @ 8:30 PM 7/10/81

WHP=630 psi @ 5:06 PM 7/11/81

WHP=705 psi @ 12:47 PM 7/12/81

(½ hr. after SI) WHP=525 psi @ 10:55 PM 7/12/81

7/13/81 3:15 PM check BHT

747' T=196° F

754' T=194° F

762' T=180° F

Treated at 50-60 psi under steam outlet pressure.

7/15/81 Ran Cornish Temp Log (most of heat at center of formation perforations)

7/16/81 Ran 4' x 1½" (1:30 PM) insert pump on 1-5/16 OD tubing and put on pump - pumped off @ 6:30 PM

7/17/81 C & B pulled pump, nothing wrong with pump

7/19/81 Well test 1.0 BWPD

8/7/81 Well pumps off in 30 min.- .22 BWPD

8/10/81 10:25 AM - 10:54 AM .22 BWPD PO

8/13/81 8:06 AM - 8:46 AM .5 BWPD PO

8/19/81 (no times) .5 BWPD PO

8/20/81 9:14 AM - 10:14 AM .98 BWPD PO

Booth #11: (Continued - 2)

8/25/81 Pumped off
8/31/81 11:30 AM-11:48 A, .32 BW PO
9/3/81 15 min. Bucket test .24 BW
9/4/81 6 min. Bucket test .12 BW
9/5/81 Pumped off in 6 min .12 BW
9/11/81 10:27-AM-10:35 AM .12 BW PO
10/12/81 Pumped well for 35 min. Barrel test
well did not pump off. Continued
pumping for 5 hours. 35.3 BW
10/13/71 Pumped off in 25 min. .4 BW
10/26/81 Pumped off in 15 min. .3 BW

PRESENT OPERATIONS

As of 11 November a total of 40,700 BBL of steamed water has been introduced into this pattern. There has also been produced approximately 5000 BBLs of water, and a negligible amount of oil. On the 20th of October steam output of scale was analyzed by Treatolite and found to contain the following:

75.3%	Sodium Chloride
11.2%	Sodium Sulfate
.7%	Iron Oxide
12.8%	Wt. Loss at 900°C

Scale removed from the #12 downhole pump indicated the following:

34.21	Wt. Loss at 900°C
19.71%	Iron Oxide
36.23%	Calcium Carbonate
9/85%	Calcium Sulfate

Wells # 11, 12, 15, and 16 are being pumped once per week while continuous injection is attempted in the #18. Formation temperatures are being monitored more closely and some indication of temperature response seems to be evident in the #14 and #12. An observation well is being drilled and cored halfway between the #18 and the #15. These cores will be analyzed for residual saturations.

The initial lack of response was believed to have been an emulsion, caused by the heating at the wellbores of the producers.