

Rates

75 quality acid:
liquid- 1BPM
N2-2000SCF/min
total foam rate - 4 BPM

* Note: If communication develops while pumping acid, shut down acid treatment and pull uphole to 3150' w/ pkr. Set pkr. Acidize perfs 3182-3353 w/ 16,000 gals 75 quality foamed 15% NEFEHCL acid consisting of 4000 gals 15% NEFEHCL and 166,638 SCF N2 in 4 equal stages using graded rock salt to divert. The total pump rate will be 4 BPM w/an estimated maximum wellhead pressure of 2000 psi. Acidize as follows:

- A. Trap 500 psi on annulus w/ 2% KCL wtr.
- B. Pmp 4000 gals 75 quality foamed acid
- C. Pmp 600 gals 75 quality foamed saturated brine w/ 600# TBA-110
- D. Pmp 4000 gals 75 quality foamed acid.
- E. Pmp 600 gals 75 quality foamed saturated brine w/ 600# TBA-110.
- F. Pmp 4000 gals 75 quality foamed acid
- G. Pmp 600 gals 75 quality foamed saturated brine w/600# TBA-110.
- H. Pmp 4000 gals 75 quality foamed acid.
- I. Flush w/ 15,000 SCF N2.

8. Flow back to recover load, immediately. Swab if necessary. Evaluate gas rate.
9. Retrieve RBP at 3400'. Reset at 3255'. Test to 2000 psi.
10. Pull uphole w/ pkr. to 3240'. Halliburton spot 60 gals of 15% NEFEHCL acid from 3233-3182'.
11. Pull uphole and set pkr. at 3080'.
12. Halliburton acidize perfs 3182-3233' w/ 8000 gals 75 quality foamed 15% NEFEHCL acid consisting of 2000 gals 15% NEFEHCL and an estimated 95,238 SCF N2 in 2 equal stages using graded rock salt to block. The total pump rate will be 4 BPM w/an estimated maximum wellhead treating pressure of 2000 psi. Acidize as follows:

- A. Trap 500 psi on annulus
- B. Pmp 4000 gals 75 quality foamed acid
- C. Pmp 600 gals 75 quality foamed saturated brine w/ 600# TBA-110
- D. Pmp 4000 gals 75 quality foamed acid
- E. Flush w/ 15,000 SCF N2

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liquid - 1 BPM
N2-2000 SCF/min
total foam rate- 4 BPM

Acid stimulation fluid specifications for steps 7 and 12.

4000 gals 15% NEFEHCL
7½ gpt PEN-5
2 gpt LO-Surf 259
1 gpt HAI-50
190,500 SCF N2
total volume foamed acid -16,000 gals

RECEIVED

MAY 14 1982

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