

Nov. 8, 1976
Harvey E. Yates Co., Inc.
Pennzoil Federal No. 1
Page 2.

WELL DATA:

Total Depth: 12,059' KB (LM)

Elevation: 3261' KB

LOWER MORROW

A) Perforations: 11,844' to 11,850' KB (10 shots - 0.34" diameter)
Acid: (1) 250 gals. - 10% Acetic
Squeeze: (1) 50 sxs. Class "H" cement with 6/10% Halad 9
Plug Back Total Depth: 11,841' KB with Halliburton SV Retainer

B) Perforations: 11,828' to 11,835' KB (28 jet shots - 0.34" diameter)
Acid: (1) 100 gals. - 7 1/2% MS
(2) 1000 gals. - 7 1/2% MS with 1000 SCF N₂ per barrel
Squeeze: 75 sxs. Class "H" cement with 6/10% Halad 9
Plug Back Total Depth: 11,805' KB

UPPER MORROW

C) Perforations: 11,539', 11,548', 11,552', 11,555', 11,569', 11,593',
11,595', 11,620', 11,635', 11,678'. (20 shots - 0.34"
diameter).

Acid:

<u>Stage</u>	<u>Gals.</u>	<u>Packer</u>	<u>Perforated Zone</u>	<u>RB Plug</u>
(1)	300-10% acetic	11,654'	11,678'	11,717'
(2)	*Note	11,605'	11,620' & 11,636'	11,654'
(3)	200-10% acetic	11,497'	11,593' & 11,595', 11,620', 11,635'	11,654'
(4)	150-10% acetic	11,435'	11,539', 11,548', 11,552' & 11,555'	11,579'
(5)	4000 gals.-7 1/2% MS w/1000 SCF N ₂ /bbl. + 30 ball sealers	---	11,539' to 11,678'	---

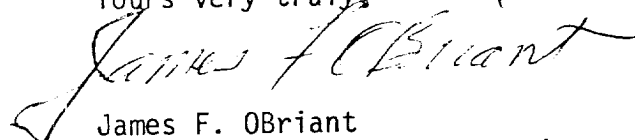
*Note: Perforations 11,620' communicated with 11,595'. Stage 2 acid combined with stages 3 and 4.

Tubing: 361 jts. - 2 3/8" OD, 4.65#/ft., N-80 8 rd. EUE

Packer: Baker Lok-Set at 11,400' in 13,000 lbs. compression

On-Off Tool: Baker with 1.78" ID "R" Nipple Profile at 11,392' KB.

Yours very truly,


James F. OBriant
Registered Professional Engineer