Attachment: D. Hefflefinger #2 (Continued)

Acidising Record

1-21-58 Cardinal Chemical Co. attempted to acidize perfs. 9284-9300' w/1000 gals. 15% reg. TM-8 - TP 5000# - 20 min. - nothing in formation - developed leak. Started communication between tubing & casing.

1-23-58 Cardinal Chemical Co. acidized perfs. 9284-9300' w/1000 gals. 15% reg. TM-8, injection rate 1 BPM - 5 min. SD - 4800#. Swab 36 BLO (all) 5 hrs. Swab 10 bbls. acid water 6 hrs. - dry 3 hrs. - no shows. 14 BAW to recover.

1-24-58 Cardinal Chemical Co. re-acidized perfs. 9284-9300' w/2000 gals. 15% reg. TM-8, went 12 bbls. over spot before pressure, TP 4200-5100#. Injection rate 1.2 BPM 5 min. - SD 4900#. Swab 24 BLO 1 hr. - 4800' FIH - 12 BLO and 62 BAW to recover.

1-24-58 Cardinal Chemical Co. re-acidized perfs. 9284-9300' w/4000 gals. 15% reg. TM-8, TP 5100-6000# - injection rate 2½ BPM for 5 mins. SD 5200#. Flowed back 27 BLO 1 hr., 3/4" choke. Swab 9 BLO (all) + 56 BAW 8 hrs., 250' FIH, slight show acid gas, S/O 100% AW. 4 bbls. last hr. 82 BAW to recover. Swab 4 BAW 1 hr. dry 6 hrs. No show gas. Swab out 2 hrs. Well opened to pit - swabbed - found dry - CP 500#. Slight vacuum 12 hrs. Vacuum will bleed 2 min., 2 bbls oil in csg. 78 BAW to recover.

1-25-58 Cardinal Chemical Co. re-acidized perfs. 9284-9300' w/8000 gals. 15% reg. non-emulsion acid. TP 5000-5500-5100#, no break. During flush unable to load pumps with high gravity oil thru 3" suction. Injection rate 3.1 BPM, 5 min. SI - 4900# - 13 bbls. acid in form. before pressure. Swab 36 BLO plus 24 bbls. mud emulsion + 74 bbls. AW in 15 hrs., slight show gas behind swab to vapor. Swab 1 bbl. last hr. - 75% AW + 25% mud emulsion - csg. slight vapor - 2½ bbls. to fill csg. Gas increased to steady slight blow 2 hrs. after 4 hrs. ran swab 1800' FIH (1200' in 4 hrs). Swab 3 BAW plus 2 bbls. mud emulsion 2 hrs. w/600' FIH - slight show gas after swab - 1 bbl. last hour 70% AW + 30 mud emulsion, pull swab - open to pit 8 hrs. - 2500' FIH (1900' in 8 hrs.). Swab 7 BAW + 28 mud emulsion 4 hrs. - 600' FIH - slight show gas after swab - 1 bbl. recovered. 1 run per hr. - hard to lower fluid level below 500' - 1¼ bbls. to load csg.

2-13-58 Cardinal Chemical Co. acidized perfs. 9284-9300' w/1000 gals. 15% reg. TM-8, 8/10 bbl. per minute for 10 mins. S/D pressure 4300#, slight communication thru-out job. Acid well placed, pressure 2 hrs. Swab 16 BLO 1 hr. 6300' FIH, 20 BLO + 24 BAW to recover.

2-13-58 Cardinal Chemical Co. re-acidized perfs w/5000 gals. 15% reg. TM-8, 8 bbls. over spot and TP 2600-4900#, CP 2000-2700#. 94/100 BPM, 10 min. SD 4800#. Swab 32 BLO + 19 BAW 5 hrs. 1800' FIH. Fair show acid gas - 7 bbls. last hr. 100% acid water. 5 BLO + 12 BAW to recover.

2-17-58 Cardinal Chemical Co. acidized perfs. 9258-9263' w/1000 gals. 15% reg. TM-8. Injection rate 8/10 BPM - 5 Min. SD 4600#, 6 bbls. over spot before pressure. Swab 36 BLO + 24 bbls. AW (all) 10 hrs. Dry 2 hrs. No shows. Acid hot.

2-17-58 Cardinal Chemical Co. re-acidized perfs. 9258-9263' w/5000 gals. 15% reg. behind 25 BLO. Oil 6 bbls. over spot, oil 0-4800#. Injection rate 2.4 BPM. Acid 4800-5600#, injection rate 1.8 BPM, S/D 5500#, 1 hr. 30 min. S/D 5400#, 1 hr. 5200#, CP 2300-2500#, during treatment 2500-2700#, slight flow back. Swab 36 BLO + 23 BAW 2 hrs. 6300' FIH. Fair show acid gas. 13½ bbls. last hr. 25 BLO + 97 BAW to recover.

2-22-58 Cardinal Chemical Co. acidized perfs. 9223-9227' w/1000 gals. 15% reg. TM-8. 3 BLO ahead of acid, 4 bbls. in formation before pressure. TP 4000-3600#, 22 BA in formation when broke. Injection rate 1.3 BPM. 5 min. SI 2800-2600#, 8 min. 1500#. Swab 39 BLO + 24 BAW 4 hrs. All BLO and AW recovered. Then swab 25 BLO + 28 BAW 6 hrs. Communicated Bough "C". Swab 34 BWO + 14 BAW 10 hrs. 500' FIH. Gas decreased from good to slight show 20 hrs. 2 bbls. fluid last hr. 10% AW.