

4-24-81
to
10-5-81

Perf Morrow 15,827'-15,831' & 15,842'-15,847' 2/sfp on 4-24-81. Open 2 hrs with no gas to surface. SI overnight to test buildup. No pressure buildup. Treated perfs W/3000 gals methanol W/clay stabilizers and ball sealers and 132,300 SCF N₂. Max pressure 9000#, min pressure 6000#, AIR 2.3 BPM. ISIP 6600#, 15 min SIP 6300#. Flowed 2-1/2 hrs, recovered 25 BLW and died. 15 hr SITP 2325#. Flowed 110 BLW in 21-1/2 hrs. Flowed 10 BLW and died. Flowed 20 BLW in 21 hrs and died. Shut in 4 days for buildup. TP increased to 1600#. Flowed 10 BLW in 4 hrs. TP decreased to 0#. Swabbed 40 BLW in 4 hrs. FL 3000'. Treated perfs W/2500 gals 7-1/2% acid + 106,000 SCF N₂ + 36 BS. Flushed W/46 bbls KCL water. Max pressure 8500#, min pressure 8300#, AIR 4.7 BPM, 15 min SIP 6200#. Flowed 35 BLW in 3 hrs. Swabbed 35 BLW in 8 hrs. Flowed and swabbed load water W/very slight shows of gas through 6-4-81. Plugged back to test other Morrow sands. Set CIBP 15,750' and dumped 1 sack cement. New PBTD 15,740'.

Perf 15,508'-15,600' W/2 shots per foot for a total of 136 holes. Slight blow after perforating. Treated perfs W/10,000 gals methanol 281,500 SCF N₂ + 200 BS. Max pressure 8220#, min pressure 7400#, AIR 7.1 BPM. Flushed W/50 bbls 2% KCL water. ISIP 3400#, 15 min SIP 3170#. Flowed 120 bbls methanol in 6 hrs and died. Treated perfs W/10,000 gals acid, 181,000 SCF N₂ + 200 balls. Max pressure 9550#, min pressure 9200#, AIR 6 BPM. ISIP 5100#, 15 min SIP 4860#. Flowed 185 BLW in 5 hrs, no gas. Flowed and swabbed through 6-16-81. Water analysis indicated that water being recovered was Morrow formation water. Set CIBP @ 15,400'. Pumped 1 sack cement on BP. New PBTD 15,390'.

Perf Morrow 15,091'-15,100' W/2 shots per foot. Treated perfs W/2000 gals methanol + 65,000 SCF N₂. Max pressure 9150#, min pressure 8500#, AIR 5.9 BPM. SITP 7200#, 15 min SIP 7200#. Flowed 30 bbls load in 2 hrs and died. Treated perfs W/2000 gals MSR-100 acid + 85,000 SCF N₂ + 40 BS. Max pressure 9500#, min pressure 9080#, AIR 3.9 BPM. Flushed W/49 bbls KCL water. Flowed 80 bbls load in 6 hrs and died. Treated perfs W/3000 gals mud acid + 122,000 SCF N₂ + 25 BS. Max pressure 9800#, min pressure 8200#, AIR 1.6 BPM. Flowed 80 BLW in 5 hrs and died. Flowed and swabbed through 7-2-81 with no shows. Plugged back to the Atoka. Set CIBP @ 14,565' and dumped 1 sack cement. New PBTD 14,555'.

Perf Atoka 14,248'-14,255' W/2 shots per foot for a total of 18 holes. Treated perfs W/2000 gals methanol + 49,000 SCF N₂. Max pressure 8900#, min pressure 7100#, AIR 3 BPM, 15 min SIP 5100#. Swabbed 30 BLW in 3 hrs. Fluid level 5500'. Treated perfs W/2500 gals MSR acid. Max pressure 8200#, min pressure 7900#, AIR 4-1/2 BPM. ISIP 5600#, 15 min SIP 5150#. Flowed and swabbed 65 bbls load in 5 hrs W/no shows. Plugged back to the Wolfcamp. Set CIBP @ 13,700' and dumped 1 sack cement. New PBTD 13,690'.

Perf Wolfcamp 13,504'-13,510' and 13,518'-13,521' W/2 shots per foot for a total of 22 holes. Treated perfs W/2000 gals 20% NE acid + 34 ball sealers + 54,600 SCF N₂. Flushed W/43 bbls KCL. Max pressure 9000#, min pressure 7200#, AIR 3.2 BPM. ISIP 6400#, 15 min SIP 6000#. Swabbed 15 bbls load in 3 hrs. Added additional Wolfcamp perfs 13,149'-13,246'. Swabbed 2 bbls condensate W/an 18' flare in 2 runs. Treated perfs W/3000 gals 28% acid + 72 BS + 66,000 SCF N₂. Flushed 41 bbls KCL water. Max pressure 8500#, min pressure 7400#, AIR 4 BPM. Flowed 85 bbls load W/an 8'-10' flare. Treated Wolfcamp perfs W/10,000 gals gel water + 20,000 gals retarded HCL + 1/2#/gal 100 mesh sand + 73 tons CO₂. Max pressure 8300#, min pressure 6500#, AIR 6 BPM. ISIP 4700#, 5 min SIP 4680#, 15 min SIP 4660#. Fair ball action. Flowed 750 bbls load in 17-1/2 hrs., TP 3300#. Flowed 15 BLW + 10 bbls condensate in 2-1/2 hrs. Swabbed and flowed 200 MCF in 2 hrs. Left open to pit W/6'-8' flare. Swabbed and flowed load W/slight show of gas and condensate through 8-14/81. Plugged back to Upper Wolfcamp. New PBTD 13,690'.

Perf Wolfcamp 12,390'-12,554' W/106 shots overall. Flowed dry gas for 3 hrs. on 24/64" choke. TP 200#. Flowed 200 MCF in 3-1/2 hrs on 8/64" choke, TP 1000#. Flowed 220 MCF in 5 hrs on 8/64" choke, SITP 3800#. Perf additional Wolfcamp 12,204' to 12,242' = 38 Shots - with 4500# increasing to 4650# on tubing. Flowed 424 MCF + 2 BO + 1/2 BW on 10/64" choke in 1 hr, TP 600#. Flowed 16 BO + 10 BLW on 1/2" choke in 7 hrs. Gas decreasing. Dumped 300# sand on BP. Treated perfs W/15,000 gals 15% acid + 15,000 gals PAD in 3 stages + 15,040 gals CO₂. Max pressure 9610#, min pressure 6660#, AIR 7-1/2 BPM. ISIP 6200#, 15 min SIP 4620#. Flowed load W/slight show of gas in 8 hrs, TP 800#. Flowed wat W/slight show condensate and gas through 9-11-81. Plugged back to test Bone Spring. Set CIBP @ 9513' and dumped 2 sacks cement. New PBTD 9503'.

Perf Bone Spring 9098'-9162'. Swabbed 6 BO + 12 BLW in 2 hrs. Treated perfs W/3000 gals 15% NE acid + 76 BS. Max pressure 3000#, min pressure 1250#. Swabbed 4 hrs, recovered 75 BLW. Fluid level 4000'. Swabbed 4 BO + 20 BLW in 7 hrs. Frac perfs W/40,000 gals KCL water + 115,000 #20/40 sand + 500 SCF N₂ per bbl. Max pressure 5250#, min pressure 4390#, AIR 13.5 BPM. SIP 1750#, 1 hr SIP 1750#. Flowed 300 bbls load in 4 hrs and died. Flowed load water W/slight show of oil through 10-5-81. Plugged back to Delaware. Set CIBP and dumped 25 sacks cement. New PBTD 8890'.

Perf Delaware 8331'-8679' W/75 shots overall.

FORMATION RECORD

FROM	TO	THICKNESS	FORMATION
0	235	235	Redbed
235	335	100	Anhydrite and sand
335	435	100	Anhydrite and redbed
435	518	83	Anhydrite and sand
518	1014	496	Anhydrite and redbed
1014	2500	1486	Redbed and salt
2500	3878	1378	Salt and anhydrite
3878	4250	372	Anhydrite
4250	5000	750	Salt, anhydrite, and lime
5000	5014	14	Anhydrite and lime
5014	5660	646	Lime and sand
5660	7358	1698	Sand, shale, and lime
7358	8564	1206	Sand and lime
8564	8786	222	Sand and shale
8786	9916	1130	Sand, shale, and lime
9916	9999	83	Shale and lime
9999	10309	310	Lime
10309	12236	1927	Lime and shale
12236	12900	664	Sand and lime
12900	13244	344	Shale
13244	13307	63	Lime and shale
13307	13817	510	Shale
13817	13870	53	Lime and shale
14188	14188	318	Shale
14763	14763	575	Shale and lime
14812	14812	49	Lime
14812	15043	231	Lime and shale
15043	15111	68	Chert and lime
15111	15136	25	Sand, chert, and shale
15136	15187	51	Sand and shale
15187	15258	71	Shale and lime
15258	15287	29	Chert and shale
15287	15297	10	Lime
15297	15313	16	Lime and sand
15313	15342	29	Chert and shale
15342	15349	7	Shale, chert, and lime
15349	15362	13	Shale
15362	15402	40	Shale and lime
15402	15565	163	Shale
15565	15610	45	Sand
15610	15671	61	Shale and sand
15671	16225	554	Shale