

Unruh 1-2  
C SE NE SW Sec. 2-T28S-R18W  
Kiowa County, KS

Drill Stem Tests

DST #1 - 3519 ft. to 3550 ft. (Emporia/Howard)

30" 45" 30" 45"

1<sup>st</sup> open: fair blow bldg to off bottom in 8 min. No gas to surface

2<sup>nd</sup> open: strong blow in 5 min. No gas to surface

Rec'd: 120' gas in pipe

60' slightly gas cut watery mud ( 10% gas, 30% water, 60% mud)

320' saltwater

IFP: 112-158 #

FFP: 163-206 #

ISIP: 1202 #

FSIP: 1195

BHT: 107 degrees

DST #2 - 4181 ft. to 4199 ft. (L.-K.C. 'A' zone)

45" 60" 45" 60"

1<sup>st</sup> open: strong blow off bottom in 15 sec. No gas to surface

2<sup>nd</sup> open: strong blow off bottom in 10 sec. No gas to surface

Rec'd: 2200' gas in pipe

45' slightly gas cut mud

IFP: 20-30 #

FFP: 20-30 #

ISIP: 540 #

FSIP: 481 #

BHT: 112 degrees

DST #3 - 4200 ft. to 4270 ft. (L.-K.C. 'B' zone)

45" 60" 45" 60"

1<sup>st</sup> open: strong blow off bottom in 30 sec. Gauged gas as follows:

20 " ¼ in. GTS

25 " ¼ in. 5.320 MCFG

30" ¼ in. 6.720 MCFG

35 " ¼ in. 7.120 MCFG

40" ¼ in. 7.320 MCFG

45" ¼ in. 7.510 MCFG

2<sup>nd</sup> open: gauged gas as follows:

10 " ¼ in. 10.4 MCFG

20 " ¼ in. 9.5 MCFG

30" ¼ in. 9.2 MCFG

40 " ¼ in. 8.89 MCFG

50" ¼ in. 8.89 MCFG

Rec'd: 4128' gas in pipe

70' gas cut mud

IFP: 28-41 #

FFP: 33-50 #

ISIP: 1351 #

FSIP: 1301 #

BHT: 110 degrees

DST #4 - 4605 ft. to 4740 ft. (Alt, Pawnee, Fort Scott, Cherokee)

30" 45" 30" 45"

1<sup>st</sup> open: weak blow bldg. to 6 in. No gas to surface

2<sup>nd</sup> open: weak blow bldg. to 3.5 in. No gas to surface

Rec'd: 200' gas in pipe

60' very slightly gas cut mud

IFP: 40-42 #

FFP: 108-158 #

ISIP: 108 #

FSIP: 158 #

BHT: 115 degrees

Drill Stem Tests (continued)

DST #5 - 4750 ft. to 4787 ft. (Mississippian)

30" 45" 30" 60"  
1<sup>st</sup> open: 3 in. blow died in 20 min.  
2<sup>nd</sup> open: no blow  
Rec'd: 120' gas in pipe  
30' very slightly gas cut mud  
IFP: 20-26 #                      FFP: 19-24 #  
ISIP: 68 #                        FSIP: 117 #  
BHT: 117 degrees

DST #6 - 4796 ft. to 4807 ft. (Kinderhook Sand)

45" 60" 60" 90"  
1<sup>st</sup> open: strong blow off bottom in 15 sec. Gauged gas as follows:  
7 "        choke    GTS  
12 "        .25 in.    45.05 MCFG  
17"        .25 in.    64.88 MCFG  
22 "        .38 in.    206.61 MCFG  
27"        .38 in.    202.94 MCFG  
32"        .38 in.    202.94 MCFG  
42"        .38 in.    202.94 MCFG  
2<sup>nd</sup> open: gauged gas as follows:  
5 "        .38 in.    126.02 MCFG  
10"        .38 in.    147.99 MCFG  
15 "        .38 in.    169.97 MCFG  
20"        .38 in.    191.95 MCFG  
25"        .38 in.    199.28 MCFG  
30"        .38 in.    202.94 MCFG  
35 "        .38 in.    202.94 MCFG  
40"        .38 in.    213.83 MCFG  
45"        .38 in.    217.60 MCFG  
50"        .38 in.    217.60 MCFG  
55 "        .38 in.    217.60 MCFG  
60"        .38 in.    217.60 MCFG  
Rec'd: 120' gas cut mud  
IFP: 34-66 #                      FFP: 35-83 #  
ISIP: 1427 #                      FSIP: 1430 #  
BHT: 94 degrees