



00241516

DATA SHEET AND DISCUSSION

LOCATION: SE NW (1980 feet south of north line and 1980 feet east of west line)  
Section 6, Range 9 North, Township 55 West, Logan County, Colorado.

COMMENCED: July 25, 1970

COMPLETED: July 31, 1970

CONTRACTOR: Exeter Drilling Company, Denver, Colorado.

CASING: 3 jts, 121 feet, set at 131 feet with 80 sacks.

STRAIGHT-HOLE TESTS: 640, 0°; 1267, 1/4°; 1957, 1/2°; 2436, 3/4°; 2769, 3/4°; 3277, 1/2°;  
3754, 1°; 4082, 1/2°; 4621, 3/4°; 5194, 1/4°; 5680, 1°.

MEASUREMENTS: All measurements are taken from the Kelly bushing approximately eight feet above the ground elevation. A 3.44 upward correction was noted but not made at 5194. The remaining 10-foot discrepancy between drilled and log tops could not be verified.

ELEVATION: 4422 ground (Powers); 4430 Kelly bushing.

<u>Formation</u>	<u>Sample Tops</u>	<u>Log Tops</u>	<u>Datums</u>
Niobrara	4757	4756	-326
Timpas	5058	5051	-621
Carlile	5110	5102	-672
Greenhorn	5165	5164	-734
Bentonite	5481	5471	-1041
"D" Sand	5578	5564	-1135
"J" Sand	5680	5668	-1238
Total Depth	5770	5757	-1327

DISCUSSION: The "D" Sand, 5564 (-1135), was 13 feet higher than the dry hole a half mile northeast of this well (which had been projected from subsurface work). The sand was of white well-rounded quartz grains that were uncemented, and it ground up badly during drilling making it difficult to evaluate from the few clusters recovered in the samples. However, no shows could be found. This was verified by the log which calculated 17 to 18% porosity and 90 to 98% water saturation between 5565 and 5586. This was a good 22 feet of clean sand compared to a 36-foot sand in the well to the northeast--a 14-foot thinning that partially represents loss of structure from the top of the "D" which could partially explain the failure of this well.

The "J" Sand, 5668 (-1238), was 21 feet higher than the well to the northeast, representing a gain of 8 feet of structure over the "D" structure. The top two benches were a gray fine hard tight quartzitic sand with little porosity or permeability. A questional show of gas was noted, but the test masked by a trace of calcite cement. Both benches were too tight to give up fluid. The third bench, 5688 to 96, was a gray fine clean sand similar to the "D" Sand with no shows in the samples. The log calculated 16% porosity and 78% water saturation. The massive 5698 to 5736 was a gray to buff fine uncemented sand that ground up while drilling. Two clusters of the buff sand disintergrated when touched but no show could be detected in the small pile of sand grains. No shows were noted, and the log was so obviously water that it was not calculated.

DISCUSSION (Continued):

The well was plugged July 31, 1970, by filling it with heavy mud from the total depth to the bottom of the surface pipe (5757-130). A 15-sack cement plug was set in the bottom 45 feet of the surface pipe (130-85); then the casing was filled with heavy mud to within 30 feet of the top. A 10-sack cement plug was set in the top 30 feet of the surface pipe (40-10).

All measurements are taken from the Kelly bushing which was approximately eight feet above the ground.

GDV jv

*George D. Volk.*  
George D. Volk, Petroleum Geologist

SAMPLE DESCRIPTION

6-9N-550

4700-20	No Samples			
40				
NIOBRARA	4757 (DT)			
60				
80				
4800				
4800-20				
40				
60				
80				
4900				
4900-20				
40				
60	Shale	dark gray mot wh to brn calc	little shale	dark gray
80	Same			
5000	"			
5000-20	"			
40	"			
TIMPAS	5058			
60	"			
80	"			
5100	"	little ls wh to buff	chalky	
CARLILE	5110	and do		
5100-20	"	little do		
40	Shale	dark gray	tr siltstone gray	little ls as above
60	do		tr do	tr do
GREENHORN	5165			
80	do			
5200	do			
5200-20	do	tr siltstone gray	tr ls wh dense	
40	do	tr do	tr do	
60	do	tr do	tr do	
80	do			
5300	do	tr siltstone gray		
5300-20	Shale	dark gray	tr siltstone gray	tr ls buff dense
40	do		tr do	
60	do		tr do	
80	do			
5400	do			
5400-20	do			
40	do			
60	do			
BENTONITE	5481			
80	do			
5500	do			
5500-20	do			
40	do			
60	do	tr siltstone gray		
70	do			
D Sand	5578 (-1148)			
80	do			
85	Shale	dark gray	tr sd wh fine porous no fluor cut or gas	Grinding badly
90	do		tr do	" "
5591 Circ.				
30 Min	do		tr do	
5600	do		tr do	
BASE D	5609			
5600-5	do			
10	do			

SAMPLE DESCRIPTION (Continued)

Shale dark gray

5610-15 do tr sd wh fine porous no fluor cut or gas. Grinding badly  
 20 do tr do  
 25 do  
 30 do  
 35 do  
 40 do  
 45 do  
 50 do tr siltstone gray  
 55 do  
 60 do tr sd as above (best sample)

J SILT 5660  
 5660-65 do  
 70 do  
 75 do  
 80 do

J Sand 5680 †  
 85 do tr siltstone gray  
 90 do  
 95 do little sd gray fine hard tight cemented no fluor no cut ? Gas  
 5700 do do  
 05 do and sd wh fine hard tight no fluor no cut ? Gas.  
 10 do little do some gray porous no show  
 15 do little do some do  
 20 do and do some do  
 30 do little do little argillite wh.  
 35 do little do and fine to med uncemented sand grains no show  
 40 do little do  
 45 do little do (1 cluster buff crumbly no show)  
 50 do little sd buff fine crumbly to silty no show  
 55 do tr sand as above  
 60 do  
 65 do  
 70 do

5770 Circ.  
 30 do  
 5770 Circ.  
 60 do  
 5770 Circ.  
 90 do tr sd as above

DRILLING-TIME RECORD

<u>From - To</u>	<u>Minutes per 5-foot interval:</u>
4700-50	3-3-3-3-3-3-3-3-3-3
4800	3-4-4-4-5-6-6-6-6-6
50	6-6-6-5-6-5-5-5-5-5
4900	5-5-5-6-5-5-5-5-5-4
50	5-5-5-5-5-5-5-4-4-5
5000	5-5-5-6-6-6-6-6-7-7
50	6-6-6-6-6-6-6-6-5-5
5100	5-5-7-8-8-9-8-9-9-8
50	7-7-4-6-6-6-6-7-7-7
5200	7-7-7-8-9-9-6-9-9*-16
50	10-10-9-10-9-11-10-10-10-10
5300	9-9-8-9-9-9-9-9-8-8
50	10-8-6-7-6-6-6-6-8-6
5400	7-8-7-8-7-6-6-6-6-6
50	7-7-7-7-7-8-8-8-8-8
5500	8-6-5-5-6-7-10-8-6-8
50	8-6-7-7-7-7-7-7-7-6

Minutes per 1-foot interval:

5550-60	1-1-1-1-1-1-1-1-1-1
70	1-1-1-1-1-1-1-1-1-1
80	1-1-1-1-1-1-1-1-4-8
90	9-5-8-7-10-9-9-6-7-10
5600	8*-4-4-4-5-3-8-6-4-5
10	2-3-2-3-3-4-3-4-3-1
20	2-3-6-6-5-6-5-6-5-7
30	3-5-3-5-7-3-5-5-4-6
40	4-3-2-2-3-4-4-3-5-3
50	5-4-3-3-3-3-3-3-3-3
60	3-3-3-3-3-4-4-5-4-6
70	6-7-8-7-8-9-7-9-8-7
80	9-9-9-8-8-10-7-9-11-11
90	4-5-5-5-5-6-7-6-6-6
5700	5-3-5-4-4-6-5-5-4-9
5700-10	6-5-5-5-6-4-6-5-8-5
20	1-1-1-1-1-1-1-1-1-1
30	2-2-2-2-2-5-8-9-8-6
40	7-2-1-2-2-2-2-4-8-8
50	8-6-5-6-4-8-6-2-2-3
60	8-3-7-8-9-8-7-6-11-13
70	10-12-11-11-11-15-11-11-15-15

BIT RECORD

<u>No.</u>	<u>Make</u>	<u>Size</u>	<u>Type</u>	<u>From</u>	<u>To</u>	<u>Footage Drilled</u>	<u>Hours Run</u>	<u>Condition</u>
1	Security	7-7/8	S-3	148	2769	2621	19	dull
2	Smith		DT	2769	4052	1283	15	"
3	Hughes		OSC-3	4052	5194	1142	18	"
4	Smith		DG	5194	5591	397	13	locked
5	Hughes		OWV	5591	5680	89	8	dull
6	Security		M-4-N	5680	5770	90	8	WO

MUD RECORD

<u>Date</u>	<u>Depth</u>	<u>Wt</u>	<u>Vis</u>	<u>Vis ccp</u>	<u>Pl Vis</u>	<u>Yld Pt</u>	<u>Gel.Strength</u>		<u>pH</u>	<u>water loss in CCs</u>	<u>wall cake in 32ds</u>	<u>Cl</u>	<u>Ca</u>	<u>Sd %</u>
7/27/70	3842						<u>Ini.</u>	<u>Final</u>						
7/28/70	5031	9.2	42	16 $\frac{1}{2}$	13	7	4	12	9.0	5.4	2	4100	80	1 hour min
7/29/70	5591	10.0	40	23 $\frac{1}{2}$	18	11	4	12	8.5	5.0	2	1800	40	
7/30/70	5733	10.0	47	24 $\frac{1}{2}$	18	13	4	10	8.5	5.0	2	1600	60	

Tester: Plains Mud