



00599883

DATA SHEET AND DISCUSSION

LOCATION: SE NW (1983 feet South of North line and 1990 feet East of West line), Section 28, Township 2 North, Range 54 West, Washington County, Colorado.

COMMENCED: February 18, 1959

COMPLETED: Set $4\frac{1}{2}$ " casing, February 24, 1959

CONTRACTOR: Exeter Drilling Company, Denver, Colorado

CASING: Set 4 joints, 130 feet of 8 5/8 inch, 24 pound new casing at 142 with 90 sacks of cement, 2% Calcium Chloride, 4% Gel. Set 153 joints, 4925.95 feet of $4\frac{1}{2}$ inch, 9.5 pound, 8 round thread new casing at 4935.5 feet with 125 sacks of 50-50 posmix, 2% Gel. Plug at 4898, 5 centralizers at 4920, 4866, 4833, 4803, and 4774. 13-5 foot sections of rotating scratchers from 4935 to 4860 and 10 sections from 4832 to 4775.

MEASUREMENTS: All measurements are taken from the kelly bushing approximately 9 feet above the ground elevation. Kelly Bushing 10.5 feet above casinghead.

ELEVATION: 4519 ground (Powers) - 4528 Kelly Bushing

<u>Formation</u>	<u>Sample Tops</u>	<u>Log Tops</u>	<u>Datums</u>
Niobrara	3971	3970	+ 558
Timpas	4331	4330	+ 198
Carlile	4382	4384	+ 144
Greenhorn	4457	4457	+ 71
Mowry	4690	4688	+ 160
Brown Lime	4700	4693	- 165
"D" Sand	4777	4773	- 245
Base of "D"	4836	4835	- 307
"J" Sand	4863	4862	- 334
Total Depth	4940	4939	- 411

DISCUSSION: The "D" Sand, 4773 (-245), ran 15 to 20 feet higher than expected from subsurface work. The sand was very silty and tight to 4788 with no shows noted in the samples, top $2\frac{1}{2}$ feet of the core, or indicated on the log. Good sand was recovered in the core from 4788 to 97 with scattered shows and questionable odor which is probably gas productive. The samples had weak fluorescence in the 24 feet of core lost and the log indicated good sand to 4834. Drill Stem test #1 from 4802 to 16 proved this section of the sand is gas productive and drill stem test #2, 4816 to 26 proved this section to be gas and transition to oil. The lower part of the sand from 4828 to 34 is questionable and from the samples and the log could be oil or transition oil to water.

Discussion (Continued)

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The "J" Sand, 4862 (-334), had no shows in the samples, although the massive sand below 4896 ground up badly and very little sand recovered in the samples. The electric log indicated the entire section too high in water to be productive.

Submitted by,

GEORGE D. VOLK
Petroleum Geologist

GDV:sh

DRILL STEM TEST RECORD

Drill Stem Test #1 4802-16

Tested between packers with the total depth at 4939. The tool was shut in for 30 minutes, open 45 minutes, then shut in for 30 minutes. There was a strong blow, gas reached the surface in 2 minutes, built to 4,000,000 cubic feet per day in 5 minutes. (90% through 1½" orifice), spray of mud in 9 minutes, spray of water in 15 minutes, estimated at 6,500,000 cubic feet per day at 25 minutes (150% through 1½" orifice). (Note, 100% gauge over to peg). The test recovered 30 feet of distillate cut water, 2 feet of distillate with a trace of oil.

Initial Shut in pressure	1146	pounds per square inch
Final Shut in pressure	1146	pounds per square inch
Initial Flow Pressure	908	pounds per square inch
Final Flow pressure	1010	pounds per square inch
Initial Hydrostatic pressure	2658	pounds per square inch
Final Hydrostatic pressure	2412	pounds per square inch
Bleed Off pressure	1427	pounds per square inch

Drill Stem Test #2 4816 - 26

Tested between packers with the total depth at 4939. The test was shut in for 15 minutes, open 20 minutes, then shut in for 30 minutes. There was a strong immediate blow, gas reached the surface in 2 minutes, building to 3,500,000 cubic feet per day in 9 minutes (80% through 1½" orifice), a spray of mud in 9 minutes, and a spray of oil in 11 minutes continuing the rest of the test period. The test recovered 175 feet of gassey oil and 5 feet of water.

Initial Shut in pressure	1146	pounds per square inch
Final Shut in pressure	1105	pounds per square inch
Initial Flow pressure	848	pounds per square inch
Final Flow pressure	908	pounds per square inch
Initial Hydrostatic pressure	2518	pounds per square inch
Final Hydrostatic pressure	2510	pounds per square inch
Bleed Off pressure	1725	pounds per square inch

Analysis of Core Plugs from
Plains Exploration #1 Mitchell,
28-2N-54W, Washington County, Colorado

<u>Core Plug No.</u>	<u>Core Depth</u>	<u>Porosity</u> *	<u>Horizontal Permeability*</u>	<u>Lithology</u>
1	4786	13.2%	0.42 md.	v.f.g. reworked ss
2	4787.5	14.7	53.4	v.f.g. ss
3	4789.5	28.7	60.7	v.f.g. ss
4	4790.8	18.1	129.5	v.f.g. ss
5	4792	18.6	101.4	f.g. ss
6	4794	12.4	275.6	f.g. ss
7	4795	27.0	47.0	f.g. ss

* Klinkenberg permeability based on 3 air permeability measurements at different pressures on each core plug.

D. B. MacKenzie
The Ohio Oil Company
Denver Research Center
March 11, 1959

BIT RECORD

<u>No</u>	<u>Make</u>	<u>Size</u>	<u>Type</u>	<u>From - To</u>	<u>Footage Drilled</u>	<u>Hours Run</u>	<u>Condition</u>	<u>Remarks</u>
1	Hughes	7 7/8	OSC-3J	150 - 3393	3243	22	WO	
2	"	"	OSC-3	3393 - 4510	1117	14	WO	
3	"	"	"	4510 - 4785	275	5	Green	Pulled to Core
4	Diamond	6 5/8	Core	4785 - 4821	36	15	Not Hurt	
4	Hughes	7 7/8	QWV	4785 - 4885	100	5	Dull	
5	CP	"	EMIV	4885 - 4940	55	7	Dull	

MUD RECORD

<u>Date</u>	<u>Depth</u>	<u>Wt</u>	<u>Vis</u>	<u>St</u> <u>Vis</u>	<u>Gel. Strength</u>		<u>pH</u>	<u>Water Loss</u> <u>in cc</u>	<u>Wall Cake</u> <u>in 32nds</u>	<u>Tester</u>
2/19/59	1800									Milwhite
2/21/59	4510	9.8	47	28	0	12	9.5	6.8	2	"
2/22/59	4820	10	85	48	2	16	9	5.8	2	"

DRILLING TIME RECORD

From - To:

Minutes per 5-foot intervals

3900-50	3-3-3-3-3-3-4-3-3-3
3950-4000	3-3-3-3-4-4-5-5-4-4
4000-50	5-5-4-4-5-5-5-5-5-5
4050-4100	5-5-5-4-4-4-4-4-4-4
4100-50	5-5-5-5-5-5-4-3-3-3
4150-4200	4-4-3-3-3-3-3-3-3-3
4200-50	4-4-4-4-4-3-3-3-3-3
4250-4300	3-3-3-3-3-3-3-3-3-3
4300-50	4-4-3-3-3-4-5-6-6-7
4350-4400	6-6-6-6-6-6-5-5-6-5
4400-50	5-5-5-5-5-5-4-4-4-4
4450-4500	4-4-6-6-6-6-6-6-6-6
4500-50	7-6-9-8-8-8-6-4-4-5
4550-4600	4-4-4-4-4-5-5-4-4-4
4600-50	4-4-4-4-4-4-4-4-4-4
4650-4700	4-4-4-4-4-4-4-4-4-4
4700-50	4-4-4-4-4-4-4-4-4-4

Minutes per 1-foot intervals

4750-60	1-1-1-1-1-1-1-1-1-1
4760-70	1-1-1-1-1-1-1-1-1-1
4770-80	1-1-1-1-1-1-2-2-3-3
4780-85	2-2-2-2-2-2*
4785-90	9-10-10-15-17
4790-4800	19-20-24-24-13-24-30-25-19-35
4800-10	29-49-27-37-33-43-43-34-21-37
4810-20	34-29-28-16-13-25-25-17-21-16*
4820-30	2-2-2-2-2-4-3-4-6-2
4830-40	2-2-4-4-4-3-1-1-2-1
4840-50	1-1-1-1-3-2-2-2-2-8
4850-60	2-5-9-9-5-8-11-5-7-4
4860-70	5-7-8-2-2-1-1-1-1-1
4870-80	1-5-6-6-2-9-8-8-5-9
4880-90	7-8-4-8-13*-2-2-2-2-4
4890-4900	5-5-7-7-8-9-3-6-5-6
4900-10	8-6-8-8-6-8-5-6-7-8
4910-20	8-8-7-8-7-10-5-5-7-5
4920-30	4-6-5-6-5-6-6-6-5-5
4930-40	5-4-6-5-5-6-5-5-6-5*

* - Trip

** - Circulated Samples

CASING SUPPLEMENT

Total Depth
Off Bottom

	4939
	<u>3.5</u>
	4935.50
1	<u>35.68</u>
	5099.82
2	<u>33.31</u>
	4866.51
3	<u>33.30</u>
	4833.21
4	<u>29.93</u>
	4803.28
5	<u>28.78</u>
	4774.50
6	<u>30.68</u>
	4743.82
7	<u>33.15</u>
	4710.67
8	<u>30.93</u>
	4679.74
9	<u>31.40</u>
	4648.34
10	<u>30.15</u>
	4618.19
11	<u>32.80</u>
	4585.39
12	<u>33.18</u>
	4552.21
13	<u>30.45</u>
	4521.76
14	<u>30.76</u>
	4491.00
15	<u>32.65</u>
	4458.35
	<u>30.45</u>
	4427.90

Kelly Bushing 10.5 feet above casinghead

.6 Scratchers - Centralizer 4920

Float Plug 4898

6 Scratchers

Centralizer

1 Scratcher (13 Sections of scratchers 4935-4860)

Centralizer

5 Scratchers

Centralizer

5 Scratchers (10 sections of scratchers 4832-4775)

Centralizer

SAMPLE LOG

3900-10	Shale dark gray	
20	Ditto	
30	Ditto	
40	Ditto	
50	Ditto	
60	Ditto	
70	Ditto	
3971	<u>Niobrara</u>	
80	Ditto	
90	Ditto	
4000	Ditto	
4000-10	Ditto; trace shale dark gray mottled brown calcareous;	
20	Ditto; little ditto	
30	Shale gray to dark gray mottled white to brown calcareous and shale dark gray	
40	Ditto and ditto	
50	Ditto and ditto	
60	Ditto and ditto	
70	Ditto and ditto	
80	Ditto; little ditto	
90	Same	
4100	Same	
4100-10	Same	
20	Same	
30	Same	
40	Same	
50	Same	
60	Same	
70	Same	
80	Same	
90	Same	
4200	Same	
4200-10	Same	
20	Same	
30	Same	
40	Same	
50	Same	
60	Same	
70	Same	
80	Same; trace limestone gray shaley dense	
90	Same; trace ditto	
4300	Same; trace ditto	
4300-10	Same; trace ditto	
20	Same; little ditto	
30	Same; trace ditto	
4331	<u>Timpa</u>	
40	Same; trace ditto	
50	Same; trace ditto	
60	Same; little limestone white to buff dense	
70	Limestone white to buff dense and shale dark gray little calcareous shale as above	
80	Same	
4382	<u>Carlile</u>	
90	Same	
4400	Same	
4400-10	Same	

Sample Log (Continued)

2

4410-20	Shale dark gray and limestone white dense
30	Ditto add ditto; trace siltstone gray
40	Ditto; little ditto; trace ditto
50	Ditto; little ditto; trace ditto
4457	<u>Greenhorn</u>
60	Ditto; trace ditto
70	Ditto; trace ditto
80	Ditto; trace ditto
90	Ditto; partly calcareous; trace ditto
4500	Ditto; partly calcareous; trace ditto; trace siltstone gray
4500-10	Ditto; partly calcareous; little siltstone gray; little limestone gray to brown crystalline
20	Ditto; partly calcareous; trace ditto; little ditto
30	Ditto; partly calcareous; trace ditto; trace ditto
40	Ditto; partly calcareous; trace ditto; trace limestone white dense
50	Ditto; partly calcareous; trace ditto; trace ditto
60	Ditto; partly calcareous; trace ditto; trace ditto
70	Ditto; partly calcareous; trace ditto; trace ditto
80	Ditto; trace ditto some gray crystalline
90	Ditto
4600	Ditto
4600-10	Ditto
20	Ditto; trace limestone gray to brown crystalline
30	Ditto
40	Ditto
50	Ditto
60	Ditto; trace limestone gray to buff crystalline
70	Ditto; trace ditto
80	Ditto
90	Ditto
4690	<u>Mowry</u>
4700	Ditto
4700	<u>Brown Lime</u>
4700-10	Ditto
20	Ditto
30	Ditto
40	Ditto; trace limestone brown crystalline
50	Ditto; trace ditto
55	Ditto; trace ditto
60	Ditto
65	Ditto
70	Ditto
75	Ditto
4777	<u>"D" Sand</u>
Circ. 30 Min.	
4779	Ditto
4779 Circ. 60 Min.	Ditto; little sand gray fine silty tight, no show
4779-85	Ditto; little ditto
4785 Circ. 30 Min.	Ditto; little ditto
4785 Circ. 45 Min.	Ditto; little ditto
4785-4921	See Core Description
Reaming Sample	Shale dark gray; little sand gray fine partly silty porous, dull fluorescence

Sample Log (Continued)

3

4921 Circ. 15
Min. Shale dark gray; little sand gray fine partly silty porous

4921 Circ. 30
Min. Ditto; little ditto

4921-25 Ditto; little ditto

30 Ditto; little ditto

35 Ditto; little ditto.

40 Ditto; little ditto

45 Ditto; little ditto; trace siltstone gray partly dull fluorescence

50 Ditto; trace ditto; trace ditto

55 Ditto; trace ditto very weak fluorescence

60 Ditto; trace siltstone gray to dark gray; slight trace of silty sand,
No show

4863 or 65 "J" Sand

65 No show

70 Ditto; trace ditto

75 Ditto; trace ditto; few clusters sand gray fine silty tight, no show

80 Ditto and sand gray fine partly silty porous, no show

85 Ditto and ditto

90 Ditto; trace sand fine dark gray reworked

95 Ditto; little sand gray fine silty tight;; trace gas acid test; no fluor-
escence

4900 Ditto; trace ditto, no show

4900-05 Ditto; trace ditto, no show

10 Ditto; trace sand gray fine partly silty, porous, no show

15 Ditto; trace ditto

20 Ditto; trace ditto

25 Ditto

30 Ditto

35 Ditto

40 Ditto; 1 cluster white fine porous sand, no show

4940-Circ. 15

Min. Ditto

4940 Circ. 30

Min. Ditto

4940 Circ. 45

Min. Ditto

4940 Circ. 60

Min. D tto

CORE DESCRIPTION AND CORE ANALYSIS RECORD

Core #1 4785 - 4821 - Recovery 12'

2' - 6" Reworked sand gray fine silty tight, no show, and shale dark gray.

8' - 6" Sand gray fine partly silty porous, streaks of weak fluorescence, questionable odor, occasional thin streaks reworked or thinly laminated with shale dark gray.

0' - 3" Shale dark gray

0' - 9" Sand gray fine porous permeable good odor, staining, and fluorescence.

	<u>Horizontal</u>	<u>Vertical</u>	<u>Porosity</u>	<u>Oil</u>	<u>Water</u>
4795-96	59	42	23.1	0.8	86.6
4796-97	1190	1124	22.0	13.2	46.4

PLAINS EXPLORATION COMPANY "D" SAND 1 of 1
 MITCHELL NO. 1 DIAMOND CONVENTIONAL RP-2-2088
 WILDCAT WATER BASE MUD WITH
 OIL ADDED 3-9-59
 WASHINGTON COLORADO 4528 KB DI
 SE 10 28 2N S4W SERVICE NO 8

CORRECTION RESULTS

Figure is corrected, and the following remarks:

NO.	DEPTH	TIME	TEMP.	WATER	SAND	GRAVEL	CLAY	REMARKS
1	4795-96	59	42	23.1	0.8	82.6	(2)	Sandstone, Fine-grain, Thin Sha Laminations.
2	4796-97	1190	1124	22.0	13.2	46.4	(2)	Sandstone, Fine-grain, Clean.

BEST IMAGE
 AVAILABLE