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PETROLEUM GEOLOGIST
444 DENVER CLUB BUILDING
DENVER, COLORADO 80202

OFFICE (303) 825-8828
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GEOLOGICAL REPORT

Kenisa Drilling Company

No. 1 Horsetail - A
2175' FNL and 1785' FWL - Section 2
Township 9 North, Range 54 West
Logan County, Colorado

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FORMATION TOPS

<u>FORMATION</u>	<u>LOG DEPTH</u>	<u>DATUM</u>
Niobrara	4230	+ 33
Carlile	4606	-343
Greenhorn	4754	-577
"X" Bentonite	4903	-640
"D" Sand	4996	-733
D-4 Sand	5026	-763
*TOTAL DEPTH	5066	-803

*Drilled additional 24' to 5090' at engineer's request.

LOG ANALYSIS

<u>FORMATION</u>	<u>DEPTH</u>	<u>POROSITY</u>	<u>RT.</u>	<u>WATER SATURATION%</u>	<u>REMARKS</u>
"D-4"	5026-40	22%	28	33%	Using Density Porosity
"D-4"	5026-40	18%	28	42%	Using Crossplot Porosity

BIT RECORD 7-7/8"

<u>NO.</u>	<u>MAKE</u>	<u>TYPE</u>	<u>DEPTH OUT</u>	<u>FOOTAGE</u>	<u>HOURS</u>	<u>FT/HR.</u>
1	Reed	HP-11	4720	4650	35-1/2	131
2	Smith	FDT	5060	340	12	28

DAILY DRILLING CHRONOLOGY
8:00 A. M. - 8:00 A. M.

<u>DATE</u>	<u>DEPTH</u>	<u>STATUS</u>	<u>ACTIVITY</u>	<u>FEET MADE</u>	<u>HOURS DRILLED</u>
3/31/93	-	-	Rigging up & preparing to commence drilling.	-	-
4/1/93	100'	Repairing rig	Spudded at 5:00 PM on 3/31. Rotary table locked up - waiting on another table.	100	1
4/2/93	1300	Drilling	Repaired rotary table. Ran 156' (4 jts) (4 jts) of 8-5/8" surface casing set @ 166' with 95 sacks of reg cement. 3% CaCl.	1200'	9
4/3/93	3700	Drilling		2400'	22
4/4/93	4950	Mixing Mud	Trip for Bit No. 2 @ 4720'.	1250	14
4/5/93	5066	Total Depth	Preparing to take DST No. 1. Reached TD & ran Phoenix Electrical Surveys.	116	8
4/6/93	5066	Total Depth	Took DST No. 1 of the "D" Sand. Based on DST results, decided to run casing for completion. Engineer wanted more rathole so well was drilled an additional 24' to a TD of 5090'.	-	-
4/7/93	5090	Total Depth	Ran casing for completion.		

DEVIATION SURVEYS

<u>DEPTH</u>	<u>DEVIATION^o</u>
511	1/4
1004	1/2
1621	1
2085	1-1/2
2548	1-1/4
3010	1-1/2
3501	1-1/4
3968	1
4720	1-1/2
5060	1-1/2

SE NW 2 9N 5E

SAMPLE DESCRIPTION

4950-4985 Shale, gray to black. Few pieces white bentonite. Trace pyrite.
4985-4990 As above - top of "D" Sand slow drilling break at 4988.
4990-5000 Shale, gray to black. Trace bentonite and pyrite.
5000' Circulated 30" Shale, gray to black. One piece sandstone, white, fine grained, no porosity, no stain or fluorescence.
5000' Circulated 60" Abundant sandstone, white, fine grained, hard, poor to no porosity, some clayfilling, no stain or porosity.
5000-5016 Sandstone as above.
5016 Circulated 1-1/2 hours. Sandstone as above except occasional rare piece of fine grained, hard, tight, sandstone with weak stain, weak fluorescence, no cut.
5016-5030 Sandstone as above.
5030-5066 Shale, gray to black. sandstone, gray-white, fine grained, poor porosity, no stain or fluorescence.
5066 T. D. Evaluated above samples three separate times and could not find any significant shows of oil or gas.

DRILL STEM TESTS

Drill Stem Test No. 1 5020-5038 Open 5 minutes, Shut-in 30 minutes. Open 60 minutes. Shut-in 120 minutes. Open with 1/4" blow increased to off bottom of bucket in 2 minutes. Second open with good off bottom blow and had gas to surface in 5 minutes at 129 MCGPD. Reached maximum of 151 MCGPD in 20 minutes and then held steady throughout.

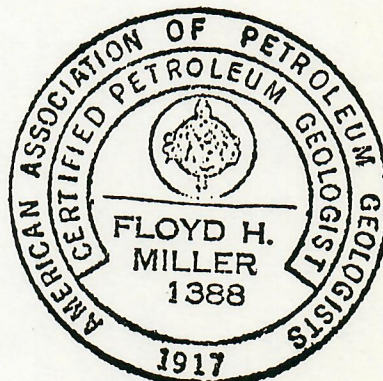
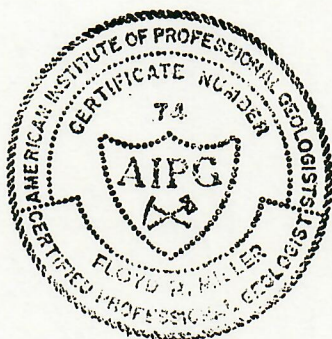
Recovered: 241' of mud with slight water cut.

Sampler: 80# pressure. 900 cc muddy water + .56 CF gas.

Pressures: IHP 2290
LFP-1 57
FFP-1 57
SIP-1 115
IFP-2 69
FFP-2 80
SIP-2 115
FHP 2279

COMMENTS

The well was drilled to evaluate the productive potential of the "D" Sandstone which produces oil and gas in nearby wells in the Horsetail and Cedar Creek Fields. The upper portion of the "D" Sand was determined to be hard and tight with poor to no porosity. In the samples, one piece of sandstone with weak stain and poor fluorescence could be found in each tray among an abundance of hard and tight sandstone. The "D-4" Sandstone drilled hard, and no stain or fluorescence was found after repeated thorough investigation. Based on electric log interpretation and the drill stem test recovery of 151,000 cubic feet of gas per day, casing was run for completion as a producing well.



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