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OIL PRODUCER

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Geological Report

#1 COPELAND
NE SE NE 26-20S-25W
Ness County, Kansas
Spud - 4/21/84
P&A - 4/27/84
Casing - 509 Ft. of 8 5/8"
Elevation - KB 2407

FORMATION TOPS

Anhydrite	1647 (+760)
Chase	2441 (-34)
Heebner	3794 (-1387)
Lansing	3835 (-1428)
Base Kansas City	4192 (-1785)
Marmaton	4212 (-1805)
Ft. Scott	4360 (-1953)
Cherokee	4384 (-1977)
Mississippian	4449 (-2042)
Osage	4477 (-2070)
TD	4510 (-2103)

DST #1	4451-4467 - Misrun
DST #2	4455-4467 - Misrun
DST #3	4425-4467

20/30/20/30 1st flow - ½" blow, 2nd flow - dead
Rec. 5' oil spotted mud ½" free oil on top
1FP 43-43 ISIP 491 FFP 43-43, FSIP 196 HP 2272-2272

The #1 Copeland ran much lower structurally than anticipated. This together with a thickening of the tight Mississippian above the Osage porosity caused the Osage porosity to be 40 to 50 feet low to Guzzler's Gulch field and 10 feet low to the dry hole in the NE SWSE of Section 23 which tested 310 feet of oil and 500 feet of salt water from the top 3 feet of Osage porosity.

The Upper Mississippian was quite different than in the surrounding wells. In these wells the section above the porosity was tight dolomite varying from 2 feet in the SE NW of Section 25 to 30 feet in the NW SW of Section 26. In the #1 Copeland 28 feet of Mississippian was present above the Osage. Unlike the surrounding wells this section consisted of a ratty sequence of shales, limestones, and chert with some dolomite. The unexpectedly ratty nature of this section was the cause of the 2 misrun DST's. A slight drilling break in this section (4457-4465) was encountered and samples were circulated up. The samples contained some sucrosic vuggy dolomite with good staining, florescence, and cut and it was decided to test this interval. The poor recovery of this test (5 ft. of mud) indicates that this good quality dolomite was only a very minor constituent of this section.

The Osage porosity was encountered at 4477 and was separated from the ratty Mississippian above by a 4 foot shale. The samples at 4490 contained sucrosic dolomite, some with good stain, fair florescence and no cut and some with no stain or florescence. The log indicated 3 feet at the top of the Osage (4477-80) which calculated to have a show. The zone had 12-20 Ohms resistivity and calculated about 45% water saturation. However, this is probably overly optimistic as the producing intervals nearby had 30-80 Ohms resistivity. Also this show in the top may have been due to the top 3 feet being a little tighter than the wet Osage below. I feel that a test of this 3 foot zone would have recovered mostly water with perhaps a little free oil.

Only one other show was encountered in this well. A zone in the Lansing (3902-04) had some oolitic porosity with faint florescence and cut. The porosity did not look good enough to test based on samples and the log confirmed this, showing only 10% porosity in this zone. Some other zones in the Lansing and Marmaton groups were white chalkey limestones and had some florescence but these and all other zones appeared very wet on the logs.

I have recontoured my Osage porosity map of the area in several different ways, using the new information from the #1 Copeland. The #1 version places the NW of Section 25 on the southeastern nosing of the Guzzler's Gulch structure too far off the crest to produce. A person can contour in a high south of the #1 Copeland in the southeast of Section 26 and southwest of Section 25, (as in interpretation #3) but this interpretation does not really fit the regional structural pattern. The #2 interpretation places a NW SE high cuning between the well in the NESWSE of Section 23 and the well in the SENW of Section 25 with a saddle between it and the Guzzler's Gulch structure. This interpretation may explain the good oil show in the NESWSE of Section 23 better than the others. The 310 feet of oil and 500 feet of salt water recovered at that location show a higher oil cut than would have been expected if this well were not separated somehow from the Guzzler's Gulch structure. The #2 interpretation is really the only one which gives us some remaining potential on our acreage with possible locations in the NENENE of Section 26 or the NWNWNWN of Section 25 but it is probably something that should be confirmed seismically.

Clyde Becker, Jr.

#1

joins original map

81
-2078
NCT

-2060
DST 4443-60 (top 3')
30/60/45/75
150' GIP, 310' oil, 500' SW
FP 41-244, 274-376 SIP 1338-1338

-2070

59
-2061
NCT

2.8

71
-2086
NCT

2.6

69
2079
DST 4505-15' (top 5')
30/60/30
2' oil, 210' MW
FP 76-128, SIP 1321-1164

2.5W

2070
DST 4463-4500 (Top 40')
30/45/60/45
570' SW

80
-2078
DST 4451-66 (top 18')
30/60/30/60
840' SW
FP 150-775 244-202

71
-2100

#2

81
-2078
NCT

-2060
DST 4443-60 (top 3)
30/60/45/75
150' GIP, 310' oil, 500' SW
FP 44-244, 274-376 SIP 1338-1338

DST 1100

↑ joins original map

-2071

59
-2061
NCT

25

26

71
-2086
NCT

69
2079
DST 4505-15 (top 5)
30/60/30
2' oil, 210' MW
FP 76/28, SIP 1321-1164

25W

2070
DST 4463-4500 (Top 40)
30/45/60/45
570' SW

80
-2078
DST 4451-66 (top 18)
30/60/30/60
840' 50CSW
FP 150-275 SIP 1344-292

71
-2100

#3

↑
Joins original
map

81
-2078
NCT

-2060
DST 4443-60 (top 3')
30/60/45/75
150' GIP, 310' Oil, 500' SW
FP 41-244, 274-376 SIP 1338-1338

-2071

59
-2061
NCT

2.5

71
-2086
NCT

2.6

69
-2079
DST 4505-15' (top 5')
30/60/30
2' Oil, 210' MW
FP 76-128, SIP 1321-1164

25W

2070
DST 4463-4500 (Top 40')
30/45/60/45
570' SW
FP 110-110, 150-250 SIP 1321-1065

80
-2078
DST 4451-66 (top 18')
30/60/30/60
840' 50' SW
FP 150-225 244-398

71
-2100