Dubois and Johnson

Consulting Geologists

432 State Bank Building • Winfield, Kansas • 316-221-0428

November 6, 1986

19 - 29 - 3w

GEOLOGIC REPORT

Hazelwood Production & Exploration Company #19-1 Farmer
NE SE NE 19-29S-3W, Sedgwick Co., Kansas

Daily Progress:

10-24 Spud, set 286' of 8-5/8" casing at 291' with 175 sacks, plug down at 12:15 p.m., drilled out beneath surface casing at 8:15 p.m.
10-25 897', drilling
10-26 1755', drilling
10-27 2507', drilling, broken down at 11:00 a.m., 2601'
10-28 2601', working on pump motors, directional surveys indicate a crooked hole starting at 2301'
10-29 2690', drilling with 6-8,000 pounds on bit to straighten the hole
10-30 3066', drilling
10-31 3236', running DST #1
11-1 3474', drilling
11-2 3795', drilling
11-3 4199', drilling
11-4 RTD 4440' reached at 2:30 a.m., ran Schlumberger E-Logs, set 5-1/2" production casing at 3494' with 130 sacks.

Formation Tops (E-Log Depths):

	Hazelwood #19-1 Farmer NE SE NE 19-29S-3W KB 1350	Structural Relation to Wakefield #1 More NW NW NW 17-29S-3W
Topeka	2324(-884)	-12
Heebner	2628(-1278)	-21
Iatan	2870(-1520)	-34
Stalmaker	2931(-1581)	-41
Kansas City	3207(-1857)	-41
Stark	3324(-1974)	-41
Base Kansas City	3406(-2056)	-38
Cherokee	3630(-2280)	-42
Mississippi	3831(-2481)	-41
Kinderhook	4193(-2843)	-43
Simpson Sandstone	4282(-2932)	-39
Arbuckle	4386(-3036)	-34
Total Depth	4041(-3091)	--

Service Companies:

Contractor: Brandt Drilling Company, Rig No. 3
Drilling Mud: MudCo
Electric Logs: Schlumberger; DIL-SFL-GR, BHC-GR, CNL-FDC-GR,ML-GR, Cyberlook
Tester: Western Testing Company

Hydrocarbon Shows:

Topeka

Smpl 2440-60
E-Log 2430-56

Limestone, white to tan, fine to medium grained, fair intergranular porosity, no odor, weak spotty flourescence in less than 5% of sample, trace of free oil, no gas kick. E-Log calculations: 2430-34, 12% porosity, 3.6 ohms, 88% SW; 2434-51, 8% porosity, 6 ohms, 95% SW; 2451-55, 11% porosity, 7 ohms, 68% SW; zone appears wet.

Kansas City

Smpl 3224-30
E-Log 3226-32

Limestone, tan, medium to coarse grained, rounded fossil grains and oolite, fair to good intergranular and moldic porosity, faint odor, spotty flourescence in 30% of sample, slight show of gassy free oil, 5 unit gas kick. E-Log calculations: 10% porosity, 13 ohms resistivity, 54% SW; oil pay zone with some water anticipated.

DST #1 3222-3236 (3224-3238 E-Log)
30-30-45-60
Strong blow, gas to surface in 15 minutes of second open period.
Gauged: 16.7 mcf in 20 minutes
14.1 mcf in 25 minutes
12.5 mcf in 35 minutes
10.9 mcf in 45 minutes
(through 1/2" choke)
Recovered: 480' clean gassy oil, 38°API, 30' mud cut gassy oil, 210' saltwater, chlorides 106,000 ppm
Flow Pressures: 118-153, 263-284
Shutin Pressures: 473-497 and building
Hydrostatic Pressures: 1670-1647
Bottomhole Temperature: 112 degrees F.

Mississippi Dolomite

3830-50 Smpl
3834-52 E-Log

Dolomite, light tan, very fine crystalline, silty, good porosity, poor apparent permeability, no odor, no gas bubbles, no show of free oil, 40 unit gas kick on hot wire and 12 units on chromatograph at top, decreased in lower part. E-Log calculations: 3834-40, 20% porosity, 1.5 ohms, 86% SW; 3840-52, 22% porosity, .9 ohms, 100% SW; gas show in top 6 feet likely to yield only saltwater.

Simpson Sandstone

4279-4300
4282-4302

Sandstone, tan to white, tan sandstone has clay plugged pores, white sandstone is "clean", fine to medium grained, rounded, moderately to well sorted, fair to good porosity, no odor, spotty weak flourescence in 5% of sample, slight show of free oil in 1 to 2 chips per tray, trace of free oil overall, no gas kick. E-Log calculations: 4286-92, 13% porosity, 1.2 ohms resitivity, 100% SW; 4292-4302, 10% porosity, 6.5 ohms, 93% SW; entire zone is wet.

Summary:

Production casing was run in the captioned well to further test the oil show in the Upper Kansas City found at a depth from 3226' to 3232'. Other hydrocarbon shows in the Topeka, Mississippi and Simpson Sandstone were determined to be noncommercial through sample evaluation and E-Log calculations. It is recommended that the Kansas City pay zone be perforated from 3226 to 3228.5 and lightly acidized. By keeping the perforations in the upper portion of the pay zone excessive water production might be avoided.

It appears that the Kansas City Zone is a stratigraphic trap situated on a "nosing" structure. All formations in the lower half of the well were found consistently low to the key well located 1-1/2 miles to the north, the Wakefield #1 More, NW NW NW 17-29S-3W.

Respectfully sumbitted,

Martin K. Dubois