JENNINGS DRILLING COMPANY

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Oil and Gas Production

June 18, 1982

GEOLOGIC REPORT
Jennings Drilling Company #2 Irick
800' FNL, 2300' FEL NE/4 7-12S-21E
Leavenworth County, Kansas

Daily Progress:

6-14 Moved on location @ 4:00 p.m.
6-15 155', WOC, plug down @ 5:30 a.m.
6-16 540', drilling
6-17 780', prepare to run 4 1/2" casing

Service Companies:

Drilling Contractor: McGown Drilling Company
E-Logs: Great Guns
Cement: Consolidated; CDL, IEL, GR-Nt

Formation Tops:

Formations	#2 Irick Appx. SW NW NE 7-12S-21E	#1 Irick C SE NW 7-12S-21E	Relation Of #2 Irick to #1 Irick
B. Kansas City	415 (+463)	+459	+4
Knobtown SS	424 (+454)	+434	+20 *
Altamont	Absent	+304	--
Cherokee	646 (+232)	+220	+12
Squirrel SS (1st)	657 (+221)	+195	+26 **
Squirrel SS (2nd)	680 (+198)	+174	+24
B. Squirrel SS	759 (+119)	+108	+11
Ardmore	Absent ?	+99	--

* Knobtown SS in #2 Irick is a different sand than that found in the #1 Irick

** Three feet of sand @ 652 (+226) in the Irick #2 is not present in the Irick #1

Shows:

424-430 Knobtown Sandstone
Sandstone, pale green, fine grained, rounded, well sorted, quartzose, moderate amount of glauconite, slightly micaceous, calcite cement, good intergranular porosity, show of gas (bubbles), no flourescence, slight cut.

652-759 Squirrel Sandstone
The Squirrel Sandstone interval is nearly all sand with 100' of net sand in the 107' gross interval. Three shale breaks exist at 655-57, 664-67, and 678-80. There are a few thin intervals that are tightly cemented with calcite (669-72, 704-06, 740-42), otherwise the sandstones are porous. The sands are uniformly oil stained tan, have uniform flourescence, fair odor and contain slight shows of free oil except at 687-92, 705-15, and 742-59 where fair shows of free oil were observed. Shows of gas (bubbles) were observed throughout. Generalized lithologic descriptions follow. 652-71, sandstone, very fine grained, sub rounded, well sorted, trace of mica and glauconite, thin (mm) green shale laminae and green shale breaks, fair intergranular porosity. 671-705, sandstone, fine grained, trace of mica and glauconite, sub rounded to subangular, well sorted, fair to good intergranular porosity. 705-42, sandstone, as above except very good intergranular porosity. 742-59, sandstone, except more mica, presence of carbonaceous material throughout, and coal fragments at the base.
See attached portion of drill time and lighologic descriptions for more details.

Preliminary Core Analysis:

Core #1 675-695 (674-694, E-Log depths).

Squirrel Sandstone

Depth	Porosity	Perm	% Oil	% Water	Total Fluid
675-76	22.2	12	5.9	40.1	46.0
677-78	20.7	11	8.7	47.3	56.0
681-82	24.5	67	13.5	42.4	55.9
683-84	24.4	22	17.2	41.8	59.0
685-86	23.7	48	17.3	43.0	60.3
687-88	21.7	9.3	30.4	38.7	69.1
689-90	21.1	12	24.6	38.9	63.5
691-92	22.0	14	29.1	36.4	65.5
693-94	23.8	34	21.4	38.2	59.6

Log Analysis:

Depth	Ød	Øn	Øc	Øe	Rt	Sw	Remarks
Knobtown SS							
424-29	14	21	--	19	4.3	85	Sli. gas effect
Squirrel SS							
652-55	17	17	--	17	7.5	72	fair gas effect
659-64	13	23	--	18	9	69	sli. gas effect
667-69	12	23	--	17	8	70	
672-78	16	22	21	21	6.5	63	
680-84	17	24	24	24	5	63	sli. gas effect
684-90	13	28	21	21	5.5	68	sli. shaley
690-98	17	27	23	23	3.5	78	
98-714	19	26	--	25	3.0	78	
717-30	17	26	--	23	2.8	87	
730-40	18	25	--	25	2.6	84	
742-56	22	25	--	25	2.2	91	

d - Density c - Core
n - Neutron e - Estimated (used in Calculations)

It was recommended that the Squirrel and Knobtown Sandstones be tested through pipe in the Jennings #2 Irick well, in spite of the apparent low resistivities of the E-Log over these sands. This recommendation was based on good sample shows, favorable core analysis, and apparent structural advantage in comparison to the surrounding area.

The core analysis revealed very low oil saturations at the top which increased downward, and relatively low water saturations throughout. Low total fluid saturations throughout the core suggest the cored interval is a gas sand. Although there is an increase in oil saturation downward in the core and cuttings I doubt there is sufficient saturation for significant oil production.

Considering the proximity of the #2 Irick to the #1 Irick there are some very significant changes. The Cherokee Shale and Squirrel Sands were found significantly higher in the #2 Irick than in the #1 Irick. There was a notable change in thickness in the net sand in the Squirrel which was 74' in the #1 and 100' in the #2. Thirteen feet of thinning between the Cherokee Shale and the top of the 1st Squirrel Sandstone was also observed. Also noteworthy is the absence of the Altamont Limestone in the #2 Irick, possibly as a result of an 8 foot fault. The Knobtown Sandstones in the two wells appear to be different sands, the one in the #2 being only nine feet below the Base Kansas City while in the #1 it is found twenty-five feet below.

It is recommended that the Squirrel sand be initially perforated from 690-694. If water free gas is tested, I would then recommend perforating all porous sandstone from 652-690. Should only water be recovered after initial perforations,

a plug should be set and the Squirrel be perforated in a higher position. The Knobtown Sandstone should eventually be perforated from 424-429, but it is recommended that it remain behind pipe until the Squirrel Sandstone is nearly depleted should it be found to be commercially productive.

Respectfully submitted,

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MKD:td