F. W. MORGAN

Geologist

RES. PHONE 744-2261 ROOM 261 — 7701 E. KELLOGG, WICHITA, KANSAS 67207 OFFICE 685-6361

June 17, 1976

Watson Petroleum, Inc.
403 Hillcrest
Wichita, Kansas

Re: Your No. 1 McDaniel
CNWNW Sec. 28-34S-6E
Cowley County, Kansas

Gentlemen:

Enclosed is my geological log on the above named well. On the log are formation tops and datums, lithology details, zones of porosity and oil shows, drill stem test interval, and results. The electric log run on this well found TD 3 feet deeper and shows all tops and zones about that much deeper than samples and drilling time. There were several shows of oil. My evaluation from the shallowest to the deepest in order follows:

The Stalnaker Sand was found at 1796 in the samples, and the two feet from 1798 to 1800 had good oil shows. In the core from 1800 feet to 1818 feet the top four or 5 feet also had oil and gas shows. Core analysis of this zone indicated that it will be productive. Allowing for depth correction the electric log largely agrees with this evaluation. Since the zone is only slightly lower than the Texas Co. No. 1 Estep to the northeast which has sold more than 200,000 barrels of oil I concur in this evaluation.

In the Pawnee Limestone of Marmaton Group we had a show of oil and odor in a sample caught at 2790 feet. Since there was no break in drilling time rate above this depth I estimated that it came from somewhere between 2770 and 2780 feet. The log showed a zone from 2782 to 86 (79 to 83 in samples) which had 9 to 10% porosity and 30 to 41% water saturation. This is probably productive, and there is some Marmaton production to the east of this well, but it is very thin and probably should not be considered as a zone for primary completion.

We had another zone in the Marmaton (Ft. Scott) from 2830 to 2840 on the log (2831-31 samples). Log calculates 8% to 10% porosity and 74% water saturation to 100% at bottom. This was tested

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in DST No. 1 where we recovered 30 feet of mud with a slight show of oil and 60 feet of muddy salt water. This zone is thus condemned by both log and test.

The last zone to be drilled which carried shows of oil and gas was the Mississippian Chert (Porous Zone). We logged it at 3164 1 in the samples and 3166 on the log. There was 12 or 13 feet of the zone. In appearance it was a white, weathered, very porous, soft chert formation. The porosity was leached or weathered into a fine vugular appearance. There was odor, free oil and gas, fluorescense. When dry the samples showed an even light brown stain or saturation. Most of it drilled one-half minute to the foot. Since you have the log calculations in detail I will summarize by saying that the porosity ran from 19% to 27% and the water saturations from 47% to 52%, both within productive limits for this formation in this area. We tried twice unsuccessfully to drill stem test the zone but were not able to get a test. This is typical. The formation does not usually lend itself to diagnostic tests. I know of none in this part of Cowley County in the Mississippian chert and have never been able to get one myself. I have examined a lot of Mississippian Chert in Cowley County over a number of years, and this compares favorably with any I have seen. In my opinion this is the type of chert that will produce and does produce in several oil pools in the area. It is especially typical of the Albright Pool in the township to the west.

I therefore have no hesitation in recommending that you run casing to test the Mississippian and Stalnaker pays. The Marmaton is less desirable because of low porosity and thinness, but it should probably be tested before abandoning the well sometime in the future.

Sincerely,

F. W. Morgan