GEOLOGICAL REPORT

Company: Musgrove Drilling Co.
Contractor: Musgrove Drilling Co.
Farm: KUBIK NO. 1
Pool: Walta
Completed: October 9, 1961

Location: NW NW SW
Description: Sec. 30-33S-3W
County: Sumner County, Kansas
Elevation: 1240 R.B.
Rotary Total Depth: 4545'

Samples were examined by writer on location from 2700' to Rotary Total Depth. (Gamma Ray-Neutron Guard Log was run.)

Formation Tops

	Sample	Electric Log
Heebner	2764 (-1524)	Not logged
Toronto	2811 (-1568)	Not logged
Stalnaker	3092 (-1852)	3092 (-1852)
Kansas City	3441 (-2201)	3440 (-2200)
Base Kansas City	3687 (-2447)	3686 (-2446)
Marmaton	3724 (-2484)	3723 (-2483)
Cherokee	3891 (-2651)	3890 (-2651)
Mississippi	4116 (-2876)	4116 (-2876)
Base Mississippi	4435 (-3195)	4434 (-3194)
Kinderhook	4435 (-3195)	4434 (-3194)
Simpson	4502 (-3262)	4501 (-3261)
Rotary Total Depth	4545 (-3305)	4544 (-3304)

Note: All Drill Stem Tests and Sample Descriptions are from drilling measurements. For more detailed descriptions, see sample and drilling time log.

Sample Description

Stalnaker Sand #1 3104-17
Light grey fine to medium grained subangular well cemented slightly micaceous and glauconitic sand with black shale inclusions. Fair porosity, no show, no fluorescence.

Sand #2 3132-3221
Light grey fine to medium grained subangular friable slightly micaceous sand; good porosity. No show, no fluorescence.

Kansas City 3441 (-2201)
3449-56 Cream-tan fine crystalline mealy fossiliferous lime. Trace fair vugular and intercrystalline porosity. No show.

3470-3480 Tan very oolitic fossiliferous lime. Poor porosity development visible. No show.

3512-17 Tan fossiliferous medium crystalline slightly cherty lime. Fair to good porosity, no show.

3520-56 Tan dense medium crystalline slightly fossiliferous lime. Good vugular and inter-fossiliferous porosity. No show, very chalky in middle and lower part.

3561-65 Tan cherty dense to medium crystalline lime. Fair porosity, no show.

3570-73 Tan fine to medium crystalline lime. Trace vugular porosity, no show.

3581-89 Tan dense cherty lime, poor visible porosity, no show.

3601-08 Tan fine crystalline mealy slightly fossiliferous lime. Trace poor inter-crystalline porosity. Trace faint spotted stain. No free oil.

3680-84 Tan fine crystalline micro-oolitic lime. Fair tight porosity, good saturation and free oil.

D.S.T. #1 3673-91 Open one hour, weak steady blow, recovered 25' mud. BHP 0#, 30 minutes.

Base Kansas City 3687 (-1447)

Marmaton 3724 (-2484)
No shows in this section. Porosity development was very poor.

Cherokee 3891 (-2651)
No visible porosity was found in this section which was mostly shale. Also, no Cherokee Sands were developed.

4116
2876
1240

Mississippi 4116 (-2876)
4116-25 White fresh chert and cherty lime. Trace of stain and fluorescence along edges of fractures. Also trace of red and amber chert in top of zone.

D.S.T. #4 (Straddle) 4118-28 Open one and one-half hours, steady increasing blow, recovered 70' thin mud. IBHP 1510#, 30 minutes, IFP 0#, FFP 0#, FBHP 165#, 30 minutes.

4166-76 White tripolitic and trace fresh white chert. Trace faint stain with good fluorescence. Trace residue.

1240
2926

D.S.T. #2 4160-80 Open one hour, gas to surface in 2½ minutes. Gauged 280,000 in 5 minutes, 340,000 in 32 minutes, too small to measure in 40 minutes, small show oil in 47 minutes. Flowed oil in 82 minutes while shut in for BHP. Reverse circulated oil and recovered in bottom three stands; 3rd stand off bottom was empty, 2nd stand off bottom had oil cut mud, 1st stand off bottom had oil cut mud and estimated 20' of muddy water. IBHP 1675# in 30 minutes, IFP 170#, FFP 545#, FBHP 1675#, 30 minutes.

Numerous other porosity zones were developed in the remaining 250' of Mississippi. All appear to be chert beds developed in the massive cherty lime section. There was no evidence of oil shows, either through samples or fluorescent light. Electric log calculations indicate water would be present in these zones; however, the salt water saturations appear to be low throughout this Mississippi section.

Simpson 4502 (-3162)
The Simpson Sand (quartzite) came in at 4502½. The bit wore out at 4505' 8". No sand was found in samples due to bad hole conditions and lost circulation trouble. Three feet, 3 inches of Simpson was cut and drill stem tested bottom two feet of penetration.

D.S.T. #3 4504-06 Open one and one-half hours, recovered 780' Gas in drill pipe, 15' oil, 45' slightly oil cut water, 420' salt water. IBHP 1520#, 30 minutes, IFP 80#, FFP 230#, FBHP 1505#, 30 minutes.
Resistivity water on sample of this water was .05.

This quartzite bed in the top of Simpson was six feet thick. Better porosity development appeared in lower three feet which apparently is carrying the fluid recovered on drill stem test.

This section is separated from the main Simpson Sand body by a four foot shale bed from 4508-12.

4512-15 White to tan fine to medium grained friable sand. Trace free oil and asphaltic residue. Good bright fluorescence.

This section appears too thin to have commercial production and calculates higher water saturation than the zone above that drill stem tested salt water.

Rotary Total Depth 4545'

Five and one-half inch production casing was cemented on bottom on October 9, 1961.

Orlin R. Phelps
Geologist on Well