



GEOLOGICAL REPORT:

November 11, 1976

Walters Drilling Co.
 No. 1 Phelps
 C NW SE 17-17S-24W
 Ness County, Kansas
 Dickman Pool
 KBE 2473

spud date 10/25/76
 Slawson Drilling Co., Rig 2

8 5/8" casing @ 300' w/200 sx
 5 1/2" casing @ 4499' w/300 sx 11/9/76

FORMATION TOPS AND STRUCTURAL POSITION:

formation	sample tops	e log tops	Walters Drlg. Dickman #6 C SW NE sec 17
Anhydrite	1748 (+725)		1769 (+716)
Heebner	3785 (-1312)	3787 (-1314)	3801 (-1316)
Lansing	3826 (-1353)	3831 (-1358)	3842 (-1357)
BKC	4126 (-1653)	4123 (-1650)	4137 (-1652)
Pawnee	4253 (-1780)	4250 (-1777)	4264 (-1779)
Fort Scott	4327 (-1854)	4330 (-1857)	4344 (-1859)
Basal Sand	4407 (-1934)	4409 (-1936)	4416 (-1931)
Mississippian	4452 (-1979)	4454 (-1981)	4445 (-1960)
RTD	4500	4502	4500

SAMPLE DESCRIPTION:

Plotted Drilling time is enclosed. Sample descriptions are logged at sample depth, not corrected back to drilling time. Samples are described from 3790-4500TD; wet samples were examined from all potential zones below 4100 sample depth.

- 3790-3800: ls, porous, algal, buff-gray, fn xln, with streaks carbonaceous matter.
- 3800-10: abund. Heebner shale, black very carb, soft.
- 3810-20; abundant gray shales
- 3820-30: ls, white, fn-med xln, with interxln and vug porosity, "mealy", no show
- 3830-40: same, with incr. shales
- 3840-60: ls, brn-white, compact, dense, ptly fn granular, with fairly abund. chert: white-lt gray, subopaque
- 3860-80: incr. gray sharp chert
- 3680-90: ls dark brn, xln, dense, some black chert, shale gray-brn
- 3690--3910: incr shale and black chert
- 3910-20: shale & ls buff - tan, part fo&siliferous
- 3920-40: ls, white to lt gray, v fine - crypxln, part chalky
- 3940-60: ls buff - white, lt brn, v fine xln to chalky, ptly oolitic, dense, no por, NS
- 3960-80: as above, with few oocastic ls: lt brn-buff, fn xln, good por & perm, NS

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- 3980-4000: abund. oocastic ls v fn-fn xln buff, gd porosity, NS
4000-10: increase shale gray-dark gray, some maroon
4010-30: ls white to lt gray, dense, crypxln, some chert
4030-40: same, becoming fn xln to v fn & fn suc. dolomitic,
compact to sli porous, tan colored, NS
4040-70: ls v fn to crypxln, lt buff - white, part chalky, dense
4070-80: as above, some v fn to fn xln, rexlized, some chert
4080-90: ls white to lt buff, w/ large to small oocasts in dense
matrix of lt gray fn to crypxln ls, probably good por, low perm,
no shows wet or dry, no odor.
4090-4135: increase in dense ls, trace chert
4135-50: shale, black-gray-gray green, pyritic (BKC)
4150-80: some ls, brn nodular & brn-buff dnse to crypxln
4180-90: some black - gray shale
4190-4215: ls lt brn - buff, xln to dnse, ptly fossiliferous,
ptly rexlized, w/ shale breaks
4215-20: ls white - buff, dnse
4220-35: incr shale gray - gray grn - maroon, w/ ls as above
4235-50: ls gray buff dnse
4250-55: as above w/some chalky ls
4255-60: incr shale gray - gray grn - maroon w/ limy nodules
4260-90: ls gray to white, gritty, w/chert gray brn - amber - orange
(Pawnee)
4290-4305: ls gray brn dense, gritty, cht as above
4305-20: incr black shale - gray grn sh
4320-35: ls as above w/ varicolored drab shales
4335-40: abundant black shale, and ls gray buff, fn xln abund fossils
many w/ fossilcasts: large to small, some isolated, some connected,
all w/very good light oil saturation, slight odor, some free oil.
(Ft. Scott) Zone not tested, same zone as Dickman #3 and #6,
assumed pressure largely depleted.
4340-50: mostly dense gray bf ls
4350 Circ 1 Hr: ls gray - white, dense to fossiliferous, no porosity
& no shows, except rare pieces with pinpoint and submicroscopic
intxln porosity on edges, having light oil stain. (no reservoir)
4350-60: increase gray to black shales
4360-75: shale, and ls brn, v fn xln, buff, dense, pt gray argill.
4375-80: as above with trace ls dense gray, ptly argillaceous, having
rare v fn rexlized edges and few tiny vugs w/light oil stain, tight
4380-90: ls white - buff, dense w/ interbedded gray shale
4390-95: increase shale gray - maroon - black, some gray grn
4395-4420: ls brn to white, dense, w/abund shale as above, some argil-
laceous & nodular ls
4420 circ 1½ hr: sandstone glassy, mostly fn grn, well sorted, com-
pact to ptly friable, all w/good light oil stain to saturation,
some free oil, some sand has very thin carbonaceous partings and
disseminated glauconite; also some clusters fn to very coarse
poorly sorted conglomeratic sand, with large loose grains in sample,
a few such clusters quartzitic & tight; 1½ hr sample has white clay
fill in conglom. type sand. Good odor, some free oil.

DST No. 1: 4396-4420 30/60/30/60 weak blow first 30 min, no blow
second opening, flushed, no help. Recovered 15' clean oil, 40'
heavily oil cut mud. SIP 1270#-1248#, FP 30#/32#/32#/43# BHT 120°

4420-40: sandstone as above

4440 Circ 1 hr: Sandstone as above, also abundant chert, mostly white

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opaque, sharp, slightly mottled, part discolored amber to orange, many pieces having circular sand pits, some having adhering coarse sand grains and clusters; some vesicular chert with dark oil saturation; fairly abundant very coarse conglomeratic ss as few clusters and many loose grains, light oil stain, trace free oil, some interstitial pyrite; sand size fn to very coarse; 1 hr sample has decrease in sand, increase chert (Osage and Warsaw types), good odor.

DST No. 2: 4420-40 30/60/60/60 good blow weakening at end of test, Recovered 140' gas in pipe, 2345' slightly gassy clean oil with a few muddy spots (reversed out), below circ sub was 35' slightly muddy oil and 90' slightly gassy heavily oil cut mud, no water (total 2470' fluid recovery) SIP 1248#-1227#, FP 108#/509#/551#/905# BHT 114°

4440-55: ss as above, very large quartz grains & drusy rounded chert.
4455 Circ 1½ hr: Very abundant chert as above, some oil stained, some loose sand, coarse to very coarse but less than above, some clusters with clay fill. First Mississippian dolomite: gray-buff fn sucrose, vuggy, bryozoan casts, having irregular oil stain, some dark scummy free oil, gray brn stain to live oil stain, some free oil, fair odor, fair reservoir. Chert is major part of sample. (impossible to evaluate chert/sand reservoir in sample, but feel most fluid in DST 3 came from that zone, not Mississippian)

DST No. 3: 4440-55 30/60/90/60 fair blow, Recovered 160' slightly oil specked muddy water, some free oil in tool SIP 1302#-1259#, FP43#/54#/65#/108# BHT 120°

4455-65: as above

4465-75: Warsaw type dolomite, "wormy", spicule casts, lt gray fn to v fn sucrose, some dense, drusy chert, most no shows, few gray brn scattered oil stain, rather tight

4475-90: dolo gray compact fn - v fn suc, few isolated spicule casts, poor porosity, no shows

4490-4500: dolo buff - lt gray, pt glauconitic, compact to some vug porosity, poor reservoir; fairly abundant milky to qzose chert, NS, some gray microfoss chert & silty dolo at TD, NS

4500 TD Circ 1½ hr: as above, ran Electra GR-N-Guard log

COMMENTS:

The Pennsylvanian Basal Sand is oil bearing from 4409 to 4441 (e log) however the upper portion of this sand is relatively tight. Nevertheless, we would recommend perforating from 4415-30 in hope that some oil would be obtained from the upper part of the section. The best part of the sand is 4424-41 (e log) and was covered by DST no. 2. This should make a good well without stimulation.

The Fort Scott from 4331-36 is possibly productive, though porosity appears low on the e log (8%) and it is very probably depleted in pressure from the Dickman 3. At some future date this zone might be considered for participation in a waterflood if attempted.

Alfred James