

This sheet replaces that of April, 1934.

February, 1940.

Midwest #36 Richardson,
SE SE SE, 36-22S-12W,
Elevation 1816'

Pennsylvanian conglomerate 3530-3540'
3530-3540 Clay shales and Arbuckle chert. May be
residuum in part.

Arbuckle Top 3540' Penetration 59' Sub-sea, minus 1724'
3540-3556 Miller dolomite.
3556-3587 Purcell dolomite
3587-3599 Cotter dolomite.

The Miller contains a concentration of chert
which was formerly believed to be Purcell.
The restored top is estimated to be 3520', or -1704'
although there is still Upper Miller present.
The section is relatively short, probably
due to compaction after solution.

April, 1934.

Midwest #36 Richardson, P
SE SE SE, 36-22S-12W,
Elevation 1816'

Pennsylvanian conglomerate 3485-3540'

- ~~3485-3513~~ Clay shales, green and rare maroon.
- 3513-3530 Clay shales, green and rare maroon; with small amounts
of chert included. Also lime nodules.
- 3530-3540 Clay, red; with about 10% chert. Probably residual.

Ordovician Top 3540'

Sub-sea, minus 1724'

Arbuckle " " Penetration 59'

" " " "

- 3540-3587 Purcell. Nearly a full section of Upper and Lower Purcell.
- 3587-3599 Cotter. Probably the upper part.

The Arbuckle is represented by 2' samples and should be a very detailed section. However, Penn was caving badly and the samples are very fine textured and small in quantity. Exact zone correlations and even the boundary between Upper and Lower Purcell are not clear. The Purcell characteristics are present at the top ~~but~~ there may even be a few feet of the Lower Miller present.

3573' correlates exactly with 3603' in the Midwest #11 Figger, 1-23S-12W.

Midwest Exploration Co.,
SE SE SE
Stafford County, Kansas.

Sec.36; T.22S; R.12W.
Richardson #36.
By A. S. Price.

1340 to 1345....Salt
1345 to 1360.... "
1360 to 1405....Salt and anhydrite.
1405 to 1505....Anhydrite. BASE WELLINGTON SALT 1405'.
1505 to 1520....Anhydrite and a little gray shale.
1520 to 1530....Anhydrite. Shale, grey and red 5%.
1530 to 1540....Anhydrite. Shale, grey 10%. Trace dolomite, light-brown, argillaceous.
1540 to 1550....Anhydrite. Dolomite, brown, cryptocrystalline. Shale, grey 10%.
1550 to 1565....Shale, grey and red and anhydrite. Trace dolomite.
1565 to 1582....Dolomite, light-brown, partly argillaceous. Trace anhydrite.
1582 to 1595....Dolomite, brownish-grey, fine, sugary. Some shale and anhydrite.
1595 to 1615....Dolomite, light-brownish grey, argillaceous.
1615 to 1625....Shale, red, greenish-grey, grey.
1625 to 1635....Chert, white and grey and dolomite, light, brownish-grey.
1635 to 1640....Same as above with a little grey and red shale, and anhydrite.
1640 to 1655....Limestone, grey, grey-white. Crinoid stems. Bryozoan.
1655 to 1675....Limestone, light-grey.
1675 to 1690....Shale, red, calcareous. Trace green.
1690 to 1700....Missing. TOP FORT RILEY 1695'.
1700 to 1720....Limestone, brownish-grey and light-grey. A little grey chert.
1720 to 1735....Limestone, cream, fine, sugary.
1735 to 1790....Limestone, cream, light-grey, porous. (FLORENCE
1790 to 1810....Limestone, cream and cherty. Many fusulinids. (FLINT
1810 to 1820....Limestone, cream, cherty. Fusulinids. (1790 to
1820 to 1830....Limestone, cream, cherty. Trace limestone, grey, argillaceous. (1830'.
1830 to 1850....Limestone, reddish and cream, sugary, porous. Shale, red and green 15%.
1850 to 1870....Limestone, brownish-grey and grey, mottled. Shale, grey and red.
1870 to 1890....Shale, grey and red. Limestone, cream, grey, red.
1890 to 1895....Limestone, light-grey, cream, cherty.
1895 to 1900....Limestone, light-grey, cream, cherty. A little shale grey and red.
1900 to 1925....No samples. BASE WREIFORD 1920' (?)
1925 to 1930....Shale, grey, calcareous, and limestone, cream. Trace chert.
1930 to 1940....Shale, grey, calcareous, and limestone, cream. Trace red shale.
1940 to 1945....Shale, red, trace grey.
1945 to 1950....Limestone, white. Shale, red and grey 15%.
1950 to 1955....Shale, grey-red.
1955 to 1960....Shale, grey and red. Limestone, cream.
1960 to 1970....Shale, red, some grey.
1970 to 1980....Limestone, light-grey and Shale, grey, green, red.
1980 to 1990....Shale, grey, some red. Limestone, grey, argillaceous.
1990 to 2000....Shale, red, some grey. Trace limestone.
2000 to 2005....Shale, red, some grey. Limestone, white, cream 20%.
2005 to 2010....Limestone, white, cream and shale, red.
2010 to 2025....Limestone, light-grey and cream. Shale, grey and red.
2025 to 2035....Shale, grey, some red. Limestone 25%.
2035 to 2045....Limestone, cream, light-grey, partly porous. Shale, red, grey 10%.
2045 to 2050....Shale, red, some grey. Trace limestone.
2050 to 2055....Limestone, cream, grey. Shale, grey.
2055 to 2060....Limestone, cream, slightly cherty. Fusulinids.
2060 to 2065....Limestone, cream. Shale, light-grey 10%.

Continuation of
Midwest Expl. Co.,

Sec.36; T.22S; R.12W.
Richardson #36.

2065 to 2075....Shale,red. Limestone,white,yellow,reddish,partly oolitic 50%.
2075 to 2080....Shale,red. Limestone,white,yellow,reddish 25%.
2080 to 2090....Limestone,cream,light-grey, reddish and shale, sand.
2090 to 2100....Shale,red and limestone, as above. TOP NEVA 2080' (?).
2100 to 2105....Shale red.
2105 to 2110....Shale, red. Limestone 25%.
2110 to 2115....Limestone, light-grey to white, Trace yellow. Shale,red 20%.
2115 to 2120....Shale,red, some grey. Limestone, as above 15-20%.
2120 to 2130....Shale,gray and dark. A little limestone,gray.
2130 to 2140....Shale,red,dark,gray.
2140 to 2150....Shale,red,dark.
2150 to 2160....Shale, light,dark-grey and red. Limestone, 10%.
2160 to 2165....Shale,red, some light-grey.
2165 to 2175....Shale,red, some light-grey. Limestone,white, amorphus,porous 20%.
2175 to 2180....Limestone,cream,cryptocrystalline. Shale,red and grey 10%.
2180 to 2185....Limestone,white. Shale,dark and red 15%.
2185 to 2190....Limestone,white,cream. Shale,dark and red 15%.
2190 to 2200....Limestone, white, cream.
2200 to 2208....Limestone,gray-white,mottled. Shale,gray 10-15%.
2208 to 2210....Limestone,cream. Shale,gray and red 20%.
2210 to 2215....Shale,red. Limestone,light-grey,white. Trace chert.
2215 to 2220....Shale,red and grey. Limestone,light-grey, white 30%.
2220 to 2225....Shale,red, some grey. Limestone 35%.
2225 to 2235....Limestone, cream. Fusulinids.
2235 to 2240....Limestone, cream to grey. Fusulinids.
2240 to 2245....Missing.
2245 to 2255....Shale,gray, trace red. Limestone 25%.
2255 to 2260....Shale, grey. Limestone 10%.
2260 to 2265....Shale,gray. Limestone,gray, mottled 35%.
2265 to 2270....Limestone, light-grey and Shale,gray.
2270 to 2275....Shale,gray and limestone, light-grey. BASE AMERICUS 2275'.
2275 to 2280....Shale,gray and light greenish-grey.
2280 to 2290....Shale,dark-grey. Limestone 15%.
2290 to 2300....Shale, dark-grey. Limestone, light-grey 20%.
2300 to 2310....Shale, dark-grey.
2310 to 2320....Shale, dark and grey, slightly micaceous.
2320 to 2330....Shale, light-grey, micaceous, gritty.
2330 to 2340....Shale, dark-grey, some light-grey, gritty.
2340 to 2345....Shale,gray. A little limestone,gray.
2345 to 2350....Limestone, light-grey. Shale,gray 30%.
2350 to 2360....Shale,gray. Some light-grey micaceous Shale.
2360 to 2370....Shale,gray, red. Limestone,cream, reddish 30%.
2370 to 2380....Shale,gray,red Trace yellowish-brown.
2380 to 2390....Shale,gray trace red and yellowish-brown.
2390 to 2400....Missing.
2400 to 2410....Shale, grey.
2410 to 2415....Shale, grey, trace red.
2415 to 2425....Shale,gray and red, trace yellowish-brown,gritty. A little Sand,fine,
cemented, lumpy.
2425 to 2430....Sand,fine,cemented,lumpy,mica, calcareous. Shale,gray,red 15%.Trace chert.
(2.)

Continuation of
Midwest Expl. Co.,

Sec. 36; T. 22S; R. 12W.
Richardson #36.

2430	to	2440....	Shale, grey and fine, cemented Sand, as above.	
2440	to	2450....	Shale, grey, micaceous, partly gritty and calcareous.	
2450	to	2460....	Missing.	
2460	to	2465....	Shale, grey. Some gritty shale as above. and a little limestone.	
2465	to	2470....	Limestone, cream. Shale, grey 45%.	<u>TOP TARKIO 2460'.</u>
2470	to	2475....	Limestone, cream 35%. Shale, grey.	
2475	to	2485....	Limestone, cream 50%. Shale, grey.	
2485	to	2500....	Limestone, cream 30%. Shale, grey.	
2500	to	2505....	Shale, grey.	
2505	to	2520....	Shale, grey and light-grey, gritty micaceous.	
2520	to	2530....	Shale, grey.	
2530	to	2535....	Shale, grey. Limestone 15%.	<u>TOP EMPORIA 2530'.</u>
2535	to	2540....	Shale, grey. Limestone 10%.	
2540	to	2550....	Shale, grey. Limestone 30%.	
2550	to	2555....	Shale, grey.	
2555	to	2560....	Shale, grey. Limestone 30%.	
2560	to	2565....	Shale, grey. Limestone 45%.	
2565	to	2575....	Limestone, grey, light-grey. Shale, grey.	
2575	to	2580....	Shale, grey. Limestone, grey and light-grey.	
2580	to	2585....	Shale, grey trace red.	
2585	to	2590....	Limestone, white, light-grey. Shale, grey 30%.	
2590	to	2600....	Limestone, with red and green shale.	
2600	to	2620....	Shale, grey. Some red, limy.	
2620	to	2625....	Limestone, light-grey. Shale, grey.	
2625	to	2630....	Shale, grey. Limestone, brown, grey.	
2630	to	2640....	Shale, grey. Some limestone, grey.	
2640	to	2650....	Limestone, brown-grey and Shale, grey.	<u>BASE BURLINGAME 2650'.</u>
2650	to	2660....	Shale, grey.	
2660	to	2670....	Shale, grey. micaceous.	
2670	to	2690....	Shale, grey.	
2690	to	2710....	Shale, grey. and Limestone.	<u>TOP HOWARD 2690'.</u>
2710	to	2715....	Limestone, light-brown, cream. Shale, grey 20%.	
2715	to	2720....	Limestone, light-grey, cream. Fusulinids. Shale, grey 20%.	
2720	to	2725....	Limestone, grey and Shale, grey.	
2725	to	2735....	Shale, grey. Limestone 15%.	
2735	to	2740....	Shale, dark-grey.	
2740	to	2750....	Shale, grey and light-grey, gritty, micaceous.	
2750	to	2757....	Shale, grey and light-grey, micaceous grit.	
2757	to	2775....	Light-grey, micaceous, shaley, gritty.	
2775	to	2790....	Limestone and Shale, grey.	<u>TOP TOPEKA 2775'.</u>
2790	to	2810....	Limestone.	<u>6 million gas 2757 to 2800'.</u>
2810	to	3000....	Missing.	
3000	to	3010....	Limestone, white to cream.	
3010	to	3020....	Limestone, white to cream, slightly cherty.	
3020	to	3030....	Limestone, white.	
3030	to	3082....	Limestone, white to tan.	<u>BASE OREAD 3082'.</u>
3082	to	3090....	Shale, light-grey, calcareous.	
3090	to	3095....	Limestone and Shale, grey.	
3095	to	3100....	Shale, light-grey, calcareous.	
3100	to	3105....	Shale, light-grey, calcareous. Limestone 15%.	
3105	to	3110....	Limestone. Shale, light-grey, 20%.	

Continuation of
Midwest Expl. Co.,

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Richardson #36.

3110 to 3115....Shale,red,trace grey. Limestone,brown to light-grey 20%.
3115 to 3125....Shale,red, trace grey. Limestone,brown to light-grey 15%.
3125 to 3130....Shale,red, trace grey. Limestone,brown to light-grey 5%.
3130 to 3155....Shale,red and grey.
3155 to 3215....Shale,gray to dark-grey, fine texture. slightly calcareous to non-calcareous.
3215 to 3220....Same as above with Limestone, grey to brown 10%.
3220 to 3225.... " " " " " " " " trace.
3225 to 3230....Shale, dark-grey and red.
3230 to 3235....Shale, dark-grey and some dull red.
3235 to 3250....Shale, dark-grey and limestone, light-grey.
3250 to 3255....Limestone, light-grey and Shale, grey.
3255 to 3260....Limestone, light brownish-grey. TOP OSWALD 3245'.
3260 to 3265....Limestone, light brownish-grey.
3265 to 3270....Limestone cream to white.
3270 to 3275....Limestone, light-grey, tan.
3275 to 3280....Limestone, brown, grey. Shale 10%.
3280 to 3285....Limestone, light brownish-grey.
3285 to 3305....Limestone, light brownish and grey.
3305 to 3308....Limestone, brown, oil stained, porous.
3308 to 3311....Limestone, brown, oolitic.
3311 to 3360....(one sample) Limestone, cream, slightly cherty.
3360 to 3370....Limestone, grey-brown to cream.
3370 to 3375....Limestone, brown, light-brown. Shale 15%.
3375 to 3388....Limestone, brown, light-brown, cream. Shale, grey 50%.
3388 to 3391....Shale, grey. Limestone 25%.
3391 to 3398....Limestone, tan. Shale 10%.
3398 to 3405....Limestone, tan to cream. Shale, grey 30%.
3405 to 3410....Limestone, tan. Shale, grey 15%.
3410 to 3415....Limestone tan to cream. Shale, grey 10%.
3415 to 3420....Limestone tan to cream. Shale, grey 10%.
3420 to 3425....Limestone tan. Shale, grey and red 5%.
3425 to 3430....Limestone, tan. Shale, grey and red 10%.
3430 to 3435....Limestone tan. Shale, grey and red 30%.
3435 to 3440....Limestone tan to cream. Shale, grey and red 5%.
3440 to 3450....Limestone, tan. Shale, grey 15%.
3450 to 3455....Limestone tan. Shale, grey, trace red 10%.
3455 to 3460....Limestone, tan. Shale, grey, trace red 10%.
3460 to 3465....Limestone tan to cream. Shale, grey and red 5%.
3465 to 3470.... " " " " " " " " "
3470 to 3475....Limestone, tan to cream. Shale, dark 30%.
3475 to 3478....Limestone, tan to cream. Shale, dark, trace red 10%.
3478 to 3482....Limestone, tan to cream. Shale, grey 20%.
3482 to 3485....Limestone, cream.
3485 to 3490....Limestone, cream. Shale, dark-grey 60%.
3490 to 3495....Limestone, grey-brown. Shale, grey and reddish 50%.
3495 to 3500....Limestone, tan. Shale, red and grey 30%.
3500 to 3510....Limestone, tan and grey. Shale, red and grey 40%.
3510 to 3515....Limestone, light-tan, light-grey, slightly cherty. Shale, grey, red 10%.
3515 to 3520....Limestone, cream cherty. Shale, grey, red. 20%.
3520 to 3525.... " " " " " " " " 15%.

Continuation of
Midwest Expl. Co.,

Sec.36; T.22S; R.12W.
Richardson #36.

3525	to	3530....	Limestone, light-grey, tan, cherty. Trace Sand, medium, round. Trace flint and trace Shale, red and grey.
3530	to	3540....	Shale, various-colored, Limestone, and Sand. <u>3540'.</u>
3540	to	3545....	Dolomite, cream, crystalline, with a little chert, shale and Sand.
3545	to	3547....	Dolomite and Shale, red, grey, green, chert. Trace Sand.
3547	to	3550....	Dolomite, cream with Shale. Trace chert and Sand.
3550	to	3555....	Missing.
3555	to	3559....	Dolomite, cream, crystalline 10-15%; Penn. Limestone, Shale, chert, Sand.
3559	to	3561....	Dolomite, cream, crystalline 70% and " " " " "
3561	to	3563....	" " " 80% " " " " "
3563	to	3565....	" " " 90% " " " " "
3565	to	3587....	Dolomite, cream, crystalline. Trace Penn. " " " "
3587	to	3599....	Dolomite, cream, crystalline. Cherty. Total Depth 3599'.

TOP PENNSYLVANIAN BASAL CONGLOMERATE 3530'
TOP SILICEOUS LIME 3540'.