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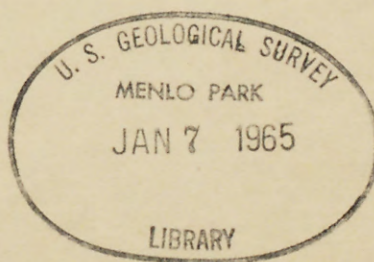
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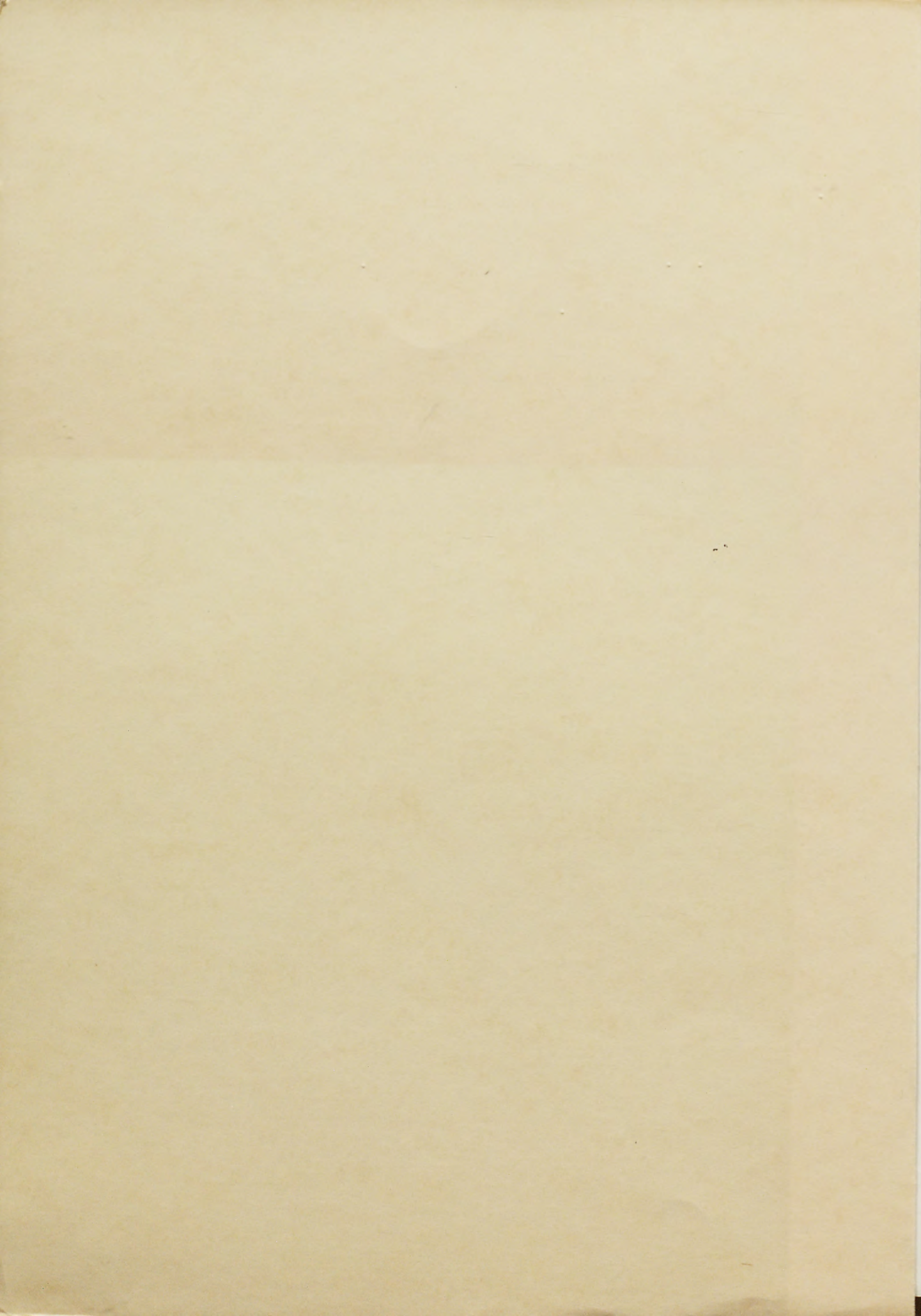
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U.S. Geological Survey.

Reports. Open file

Detailed Description of Sample Logs for
Two Wells in Shawnee County, Kansas.
by Adkison, W. L.





(200)
R290
no 64-1



UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Detailed description of sample logs for two
wells in Shawnee County, Kansas

index By
W. L. Adkison, 1927-



REPORT, OPEN FILE]
1964

This report is preliminary and has not been
edited or reviewed for conformity with
Geological Survey standards or nomenclature.

Abbreviations ^{a/}

About	abt.	Gastropod	Gast.	Probable, probably	prob.
Above	abv.	Glassy	gl.	Pseudo-	psdo.
Abundant	abnt.	Glaucanite, glauconitic	glau.	Pyrite, pyritized	pyr.
Amount	amt.	Good	g.	Quartz	qtz.
Angular	ang.	Grain, grained	gr.	Quartzite	qtzt.
Anhydrite, anhydritic	anhy.	Granite	grnt.	Quartzose	qtzs.
Argillaceous	arg.	Granular	gran.	Rhomb, rhombic	rhmb.
Asphalt, asphaltic	asph.	Gray	gy.	Round, rounded	rd.
Bedded	bed.	Green	gn.	Sample	spl.
Bedding	bdg.	Gypsum, gypsiferous	gyp.	Sand	sd.
Black	blk.	Hard	hd.	Sandstone	ss.
Blue, bluish	bl.	Included, inclusion	incl.	Sandy	sd.
Brachiopod	Brac.	Ironstone	Fe-st.	Scattered	scat.
Brown	brn.	Irregular	ireg.	Schist	sch.
Bryozoa	Bry.	Large, larger	lrg.	Secondary	sec.
Calcite, calcareous	calc.	Light, lighter	lt.	Shale	sh.
Carbonaceous	carb.	Limestone	ls.	Shaly	shy.
Cement, cemented	cmt.	Limy	lmy.	Silica, siliceous	sil.
Cephalopod	Ceph.	Lithographic	lith.	Siltstone	siltst.
Chert	cht.	Little	ltl.	Silty	sily.
Clay, clayey	cl.	Long	lg.	Slight, slightly	sl.
Claystone	clst.	Loose	lse.	Small	s.
Clean	cln.	Material, matter	mat.	Smooth	sm.
Clear	clr.	Matrix	mtx.	Soft	sft.
Coarse, coarsely	c.	Medium	m.	Speck, speckled	spec.
Color, colored	col.	Metamorphic	meta.	Sphalerite	sphal.
Conglomerate	congl.	Mica, micaceous	mica.	Sphenite, sphenoidal	sphn.
Crinoid, crinoidal	Crin.	Moderate	mod.	Splintery	sply.
Crystal, crystalline	xl.	Mottled, mottling	mot.	Spore	Sp.
Dark	dk.	Oil	o.	Spot, spotted, spotty	sp.
Dense	dns.	Oil stain	o. stn.	Stain, stained, staining	stn.
Detrital, detritus	dtrl.	Olive	olv.	Streak	str.
Dolomite, dolomitic	dol.	Oolitic, oolitic	ool.	Stringer	strg.
Earthy	rthy.	Oolite, oolitic	ool.	Subangular	sbang.
Faint	fnt.	Opaque	op.	Subrounded	sbrd.
Feldspar, feldspathic	fld.	Orange	orng.	Tight, tightly	tt.
Figured	fig.	Ostracode	Ost.	Trace	tr.
Fine, finely	f.	Part, partly	pt.	Translucent	trns.
Fissile	fis.	Pebble	pbl.	Tripoli, tripolitic	trip.
Flaky	flky.	Pelecypod	Plec.	Vein	vn.
Foraminifera	Foram.	Pellet	pel.	Very	v.
Fossil, fossiliferous	fos.	Phosphate, phosphatic	phos.	Vug, vuggy, vugular	vug.
Fragment, fragmental	frag.	Pink	pk.	White	wh.
Friable	fri.	Pin-point	p.-p.	With	/
Frosted	fros.	Pisolite, pisolitic	pisol.	Yellow	yel.
Fusulinid	Fus.	Porosity, porous	por.		

^{a/} Mitchell, J. G., and Maher, J. C., 1957, Suggested abbreviations for lithologic descriptions: Am. Assoc. Petroleum Geologists Bull., v. 41, p. 2103-2107.

FORRESTER et/ al. HUMMER ¹
SE cor., NE $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 14, T. 11, S., R. 16 E.

Shawnee County, Kansas

Altitude: 955 feet (est.) Total depth: (Driller's log, 3023 feet)

Total depth: (Samples, 3050 feet)

Completion date: March 10, 1930

Initial production: Dry

Electrical log: None

Sample intervals: Not noted

Cored intervals: None

Cable-tool samples

<u>Depth, feet</u>	<u>Sample Description</u>
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0-1785	No samples
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Pennsylvanian-Des Moines Series

Cherokee Group

1785-1787	Ss., v. lt. gy., f. to m. gr., sbang. to sbrd., many c. to v. c. grs. and larger frags. of qtz. and qtzt.
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Mississippian

1787-1790	Cht., wh. to m. gy., dns. to semi-trip., op.
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1790-1845	No samples
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1845-1855	Dol., lt. gy. to v. pale orng., f. xl.; wh. to m.- lt.-gy. dns. op. cht.; wh. trnsl. dns. cht. and fig. cht.
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1855-1865	Ls., m. lt. gy., v. f. xl., sl. slty., Crin.; lt.- to m.-gy. dns. op. cht. and spic. cht.
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1865-2040	No samples
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Mississippian and Devonian

Chattanooga Shale

2040-2160 No samples

Devonian

Hunton Group, upper part.

2160-2170 No samples

2170-2180 Dol., pale to mod. yel. brn., v. f. xl., sl. arg;
pale-yel.-brn. and lt.-to m.-gy. dns. op. cht.; tr.
clr. xl. qtz.

2180-2190 No samples

2190-2200 Dol., lt. gy. to v. pale orng., v. f. xl., scat. m.
rd. fros. sd. grs.; pale-yel.-brn. dns. op. cht.;
scat. clr. qtz. frags.

2200-2209 Dol., brn. gy., v. f. xl., scat. f. to m. sbrd. fros.
sd. grs.; clr. xl. qtz. frags.

2209-2210 Sh., m. gy.

2210-2215 Dol., as abv.

2215-2220 Dol., m. gy., v. f. xl., scat. f. to m. rd. fros.
sd. grs.

2220-2222 No samples

2222-2228 Dol., pale yel. brn., v. f. to f. xl., f. to m. rd.
fros. sd. grs.; m.-lt. to m.-dk.-gy. dns. op. cht.,
ltl. lt.-gy. trns. cht.

2228-2230 No samples

2230-2235 Dol., as abv.; lt.-gy., v. f. xl., dol.

2235-2238 Ss., clr., f. to m. gr., rd., fros., drills lse.

2238-2240 Sh., lt. gn. gy., f. to m. sdy. in pt.

2240-2243 Dol., lt. gy. to pale yel. brn., v. f. xl., f. to m.
sd.

2243-2245 Ss., clr., f. to c. gr., rd., fros., drills lse.

Silurian?

Hunton Group, lower part

2245-2260 No samples

Ordovician-Upper Ordovician Series

Maquoketa (Sylvan) Shale

2260-2275 Sltst., m. lt. to m. gy., dol., spec., pyr.; much
f. to c. rd. fros. lse. sd. - prob. caving.

2275-2330 No samples

Ordovician-Middle and Upper Ordovician Series

Viola Limestone

2330-2345 No samples

2345-2360 Dol., pale yel. brn. to brn. gy., v. f. xl.; yel.-brn.
to m.-gy. op. cht. / abnt. dol. xl. in pt.

2360-2370 Dol., pale yel. brn. to brn. gy., f. to m. xl.; brn.-
gy. to m.-gy. dns. cht.

2370-2375 Dol., pale yel. brn., f. to m. xl.

2375-2412 No samples

2412-2430 Dol., pale yel. brn. to brn. gy., m. xl.

2430-2435 Dol., pale yel. brn., f. to m. xl.

2435-2440 Dol., brn. gy., f. xl.

2440-2445 No samples

2445-2450 Dol., pale to mod. yel. brn., f. xl.

Ordovician-Middle Ordovician Series

Simpson Group

2450-2452 Sh., gn. gy.

2452-2454 Ss., lt. gy., f. to m. gr., v. dol.

2454-2457 Ss., clr., f. to m. gr., sbrd. to rd., fros., lse.,
many c. rd. fros. gr.

- 2457-2460 Dol., pale yel. brn. to brn. gy., f. xl.
- 2460-2463 Dol., brn. gy. to m. dk. gy., f. to m. xl.
- 2463-2465 Ss., clr. to lt. gy., f. to m. gr., lse., many c. gr.
- 2465-2475 Ss., wh., m. to c. gr., sbrd. to rd., fros., lse., some sec. enlargement.
- 2475-2515 Ss., wh., m. gr., sbrd. to rd., fros., lse., ^{many} c. grs., some sec. enlargement.
- 2515-2520 No samples
- 2520-2535 Ss., wh., m. gr., sbrd. to rd., fros., lse., few c. gr., some sec. enlargement.

Ordovician and Cambrian

Arbuckle Group

- 2535-2540 Dol., m. lt. to m. gy., v. f. xl.; lt.-to m.-gy. dns. cht.
- 2540-2545 Dol., m. lt. gy., v. f. to f. xl.; v. lt. gy. semi-trnsl. m. ool. cht.; tr. f. sdy. cht.
- 2545-2548 Ss., wh., m. to c. gr., rd., fros., lse., some sec. enlargement.
- 2548-2550 Sh., dk. gy.; dk.-gy. dns. cht. Note: 45-50 sample may be out of place.
- 2550-2555 Dol., m. lt. gy. to v. pale orng., f. xl.; wh. to lt.-gy. cht.; much sd. caving.
- 2555-2565 Dol., m. lt. gy. to v. pale orng., m. xl.; wh. to lt.-gy. dns. cht. and ool. cht.
- 2565-2575 Dol., as abv.; wh. to lt.-gy. dns. cht.
- 2575-2585 Dol., lt. gy. to v. pale orng., m. xl.; scat. m. rd. sd. gr. (caving?)
- 2585-2595 Dol., pale to mod. yel. brn., m. xl.
- 2595-2600 Dol., lt. gy., f. to m. xl.
- 2600-2605 Dol., pale to mod. yel. brn., f. to m. xl.
- 2605-2670 No samples

- 2670-2690 Dol., m. lt. gy., f. to m. xl.; ltl. wh. to lt.-gy. cht; xl. qtz.
- 2690-2710 Dol., as abv.; xl. qtz.; some m. rd. fros. sd. gr. (cave?)
- 2710-2730 Dol., m. lt. gy., f. to m. xl.; xl. qtz.
- 2730-2750 Dol., m. lt. gy., m. xl.
- 2750-2770 Dol., as abv., tr. of wh. trip. cht.
- 2770-2777 Dol., lt. gy., f. to m. xl.; wh. dns. cht. and trip. cht.; tr. of silt-size glau.
- 2777-2780 Ss., clr., f. to m. gr., rd., fros., lse.
- 2780-2790 Dol., lt. gy., f. to m. xl.
- 2790-2800 Dol., m. lt. gy., f. to m. xl.
- 2800-2810 Dol., m. lt. gy., f. xl.; ltl. xl. qtz. and wh. trip. cht.
- 2810-2812 Sh., gn. gy. to lt. olv. gy., v. glau.
- 2812-2828 Dol., m. lt. to m. gy., f. to m. xl.
- 2828-2830 Sh., gn. gy., glau., pyr.
- 2830-2840 Dol., m. lt. gy., f. to m. xl.
- 2840-2845 Dol., pale yel. brn., m. xl.
- 2845-2847 Sh., m. lt. gy. to gn. gy., glau.
- 2847-2850 Dol., m. gy., f. xl., pyr.
- 2850-2864 Dol., pale to mod. yel. brn., m. xl., pyr.
- 2864-2866 Sh., m. lt. gy. to gn. gy., glau.; gn.-gy. glau. sh.
- 2866-2880 Dol., pale to mod. yel. brn., f. to m. xl.
- 2880-2900 Dol., pale to mod. yel. brn., f. to m. xl.

Cambrian-Upper Cambrian Series

Bonneterre Dolomite

- 2900-2920 Dol., m. lt. gy., f. to m. xl., scat. f. to m. sd. gr., silt-size pyr., (xl. qtz.?)
- 2920-2930 Dol., m. lt. gy., f. to m. xl., tr. of glau., pyr., scat. f. to m. sd. gr.
- 2930-2940 No samples
- 2940-2950 Dol., as abv., v. s. amt. of sample
- 2950-2970 Dol., m. lt. to m. gy., m. xl., glau., pyr., scat. f. to m. rd. fros. sd. gr.
- 2970-2972 Sh., m. lt. gy. and gn. gy.
- 2972-2984 Dol., m. lt. to m. gy., f. xl., v. glau., pyr., scat. f. to m. rd. fros. sd. gr.

Reagan Sandstone

- 2984-3003 Ss., wh. to clr., f. to m. gr., sbang. to sbrd., scat. c. gr., much sec. enlargement, lse.
- 3003-3010 Ss., pk. to clr., c. to v. c. gr., granules of ang. qtz. and grnt. (prob. "granite wash")

Precambrian

- 3010-3023 Grnt., pk. to clr., much biotite
- 3023-3025 Spl. mostly qtz. (dike?)
- 3025-3030 Grnt., pk. to clr., some biotite
- 3030-3048 No samples
- 3048-3050 Grnt., as abv.

Total Depth (Samples) 3050

Total Depth (Driller's Log) 3023

Clint Murchison Federal Land Bank I¹

SE cor., Sec. 28, T. 10 S., R. 15 E.

Shawnee County, Kansas

Altitude: 1058 feet.

Total Depth: 2885 feet.

Completion date: July 31, 1943

Initial production: Dry

Electrical log: None

Sample intervals: irregular

Cored intervals: None

Cable-tool samples

<u>Depth, feet</u>	<u>Sample description</u>
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Pennsylvanian-Virgil Series

Wabaunsee Group

Auburn Shale

0-4 Sltst., lt. gy. to lt. olv. gy., lmy.

Bern Limestone

4-6 Ls., lt. gy., v. f. xl.

6-8 Ls., lt. gy., f. gr., arg., pyr.

8-10 Ls., brn. gy., v. f. gr.

10-14 Sltst., m. lt. gy., v. lmy.

14-15 Ls., lt. olv. gy., v. slty.

15-18 Sltst., lt. olv. gy., v. lmy.

18-20 Ls., pale to mod. yel. brn., v. f. xl.; m.-lt.-gy.
v. f. gr. ls., xl. calc.

Scranton Shale

20-25 Sltst., m. lt. gy., v. lmy., sl. mica., tr. glau. in pt.

25-27 Sh., m. gy., Brac.

27-30	Ss., m. lt. gy., v. f. gr., slty., lmy.
30-33	Sh., m. gy., Crin.
33-35	Ls., m. gy., v. f. gr., arg., Crin., Spine.
35-40	Sltst., m. lt. gy., lmy.
40-43	Ls., m. gy. to olv. gy., v. f. gr., v. arg., Crin., Spine.
43-44	Coal
44-60	Sltst., m. lt. gy., scat. v. f. carb. mat., sl. olv. brn. tint, fairly soft.
60-80	Sltst., m. lt. gy., sl. olv. brn. tint, fairly soft.
80-90	Sltst., as abv.; coal frag. in sltst.
90-100	Sltst., as abv.
100-107	Sltst., as abv., one m. sbrd. sd. gr. in sltst. frag.
107-116	Sltst., m. lt. gy., lmy., v. f. sdy., carb. films and frags.
116-120	Ss., m. lt. gy., v. f. gr., slty., lmy., scat. coal frag.?
120-130	Sltst., lt. olv. gy., carb. film and frag., fairly hd.
130-135	No samples.
135-140	Ss., lt. gy., v. f. gr., sl. mica. and lmy., slty. in pt.
140-145	Ss., lt. gy., v. f. gr., lmy., por.
145-150	Sltst., m. lt. gy., v. f. sdy.
150-155	Sltst., m. lt. gy.
155-164	Sltst., as abv., v. f. pyr.
164-173	Ss., lt. gy., v. f. gr., slty.
173-179	Ss., lt. gy., f. gr., mica., sl. lmy. in pt., much carb. mat.
179-180	Coal
180-181	Sh., dk. gy.
181-185	Sh., m. dk. gy., v. lmy., fos.

Howard Limestone

185-190	Ls., m. gy., v. arg., abnt. Fus.
190-193	No samples.
193-195	Sh., blk.
195-199	Ls., lt. olv. gy., v. f. gr., sl. dol., slty., Brac., Spine, Bry.?, Fus.
199-200	Sh., dk. gy.
200-201	Coal

Severy Shale

201-210	No samples
210-214	Sh., m. gy., slty.
214-220	Sltst., m. lt. to m. gy., mica. scat. v. f. carb. mat., brn. Fe/-st.
220-235	Sh., m. gy., slty., brn. Fe/-st.
235-240	Sh., m. gy., sl. lmy.

Shawnee Group

Topeka Limestone

240-243	Ls., m. gy., v. f. gr., arg., Fus., Brac., Spine, Bry., Crin.
243-246	Sh., dk. gy. to blk.
246-250	No samples
250-252	Ls., pale yel. brn., v. f. gr. to dns., Ost., calc. vn.
252-256	Sh., gn. gy.
256-260	Ls., pale yel. brn. to m. lt. gy., v. f. gr., dol. in pt., Brac., Spine; m.-dk.-gy. to brn.-gy. dns. v. fos. cht.
260-262	Sh., m. gy., lmy., fos.
262-267	Ls., m. lt. gy. and pale yel. brn., v. f. gr., abnt. Fus.

Calhoun Shale

- 267-270 Sh., m. gy., sl. lmy.
270-277 Sltst., m. lt. gy., mica., abnt. v. f. carb. mat.
277-283 Sh., m. gy., sl. gn. in pt.
283-290 Sltst., m. lt. to m. gy., mica., sl. lmy. in pt.,
v. f. carb. mat.
290-298 Sltst., m. lt. gy., v. f. sdy., lmy., mica.
298-300 Sltst., m. gy., lmy.; many reddish-brn. spots,
Brac.?, Plcy.?
300-304 Sltst., m. lt. gy., sl. lmy., mica., v. f. carb. mat.
304-306 Sh., m. gy.

Deer Creek Limestone

- 306-307 Ls., m. gy., v. f. gr., arg., fos.
307-310 Ls., pale yel. brn., v. f. to f. xl., Fus., Crin., Brac.
310-314 Ls., lt. gy., v. f. gr.
314-317 Ls., m. lt. to m. gy., f. gr., arg.
317-318 Ls., m. lt. gy., v. f. gr., arg.
318-320 Sh., m. gy.
320-321 Sh., blk.
321-324 Ls., m. gy., v. f. gr., Fus.
324-331 Sh., m. lt. gy., lmy.
331-335 Ls., lt. gy. to v. pale orng., v. f. gr., v. abnt.
f. to m. oolitoid Osagia pel.
335-338 Ls., pale yel. brn., v. f. gr., Fus., Osagia as abv.,
Crin.

Tecumseh Shale

- 338-339 Sh., m. gy.
339-343 Sltst., lt. gy. to brn. gy., lmy., v. hd.

- 343-360 Sltst., lt. to m. lt. gy., mica., v. f. carb. mat.,
sl. lmy. in pt.
- 360-362 Sh., m. dk. gy.
- 362-370 Sh., m. lt. to m. gy., slty.
- 370-405 Sh., m. gy.

Lecompton Limestone

- 405-410 Ls., m. to m. dk. gy., v. f. gr., arg., Fus.
- 410-414 Sh., m. gy., lmy.
- 414-421 Ls., m. lt. gy., v. f. gr., arg., Fus., Crin., Brac.
- 421-423 Sh., m. dk. gy., Ost.?
- 423-425 Sh., blk., Conodont?
- 425-426 Ls., m. lt. to dk. gy., sp., f. gr., arg.
- 426-430 Ls., lt. gy., v. f. gr., sl. arg., Fus.
- 430-436 Ls., v. pale orng., v. f. gr., abnt. Fus., Brac.?

Kanwaka Shale

- 436-438 Sh., m. gy., slty.
- 438-441 Sltst., m. lt. gy., sl. lmy., mica.
- 441-444 Sh., m. gy., sl. gn.
- 444-450 Sh., m. gy., scat. carb. imprints.
- 450-454 Ss., m. lt. gy., v. f. gr., slty., lmy., scat. carb.
frags.
- 454-455 Sh., m. gy.
- 455-461 Ls., m. gy. to pale brn., v. f. gr., arg., Fus., Crin.,
Spine.
- 461-463 Sltst., m. gy., sl. lmy.
- 463-465 Ss., m. lt. gy., v. f. gr., slty., lmy., sl. mica.
- 465-470 Sltst., m. gy., v. f. sdy., lmy., mica.
- 470-476 Sltst., m. gy., lmy.

- 476-478 Ss., m. lt. gy., v. f. gr., lmy., slty.
- 478-480 Sh., m. gy.
- 480-486 Sltst., m. gy., lmy., mica., carb. frags.
- 486-490 Sh., m. gy., carb. frags.
- 490-497 Sh., as abv., slty.
- 497-505 Sltst., m. lt. gy., mica., sl. lmy., carb. frag.,
abnt. brn. sp.

Oread Limestone

- 505-510 Ls., m. gy., v. f. gr., arg., Fus., Spine, much shell
hash.
- 510-512 Sh., m. gy., lmy.
- 512-515 Ls., m. gy. to pale yel. brn., v. f. gr., sl. arg.,
Fus., Crin., Brac.
- 515-520 Ls., as abv., Bry.
- 520-524 Ls., pale yel. brn., yel. gy. and lt. gy., v. f. gr.,
Fus., Crin.; m.-dk.-gy. to brn.-gy. dns. fos. cht.
- 524-533 Ls., as abv., sl. arg.
- 533-536 Sh., m. gy.
- 536-538 Sh., blk.
- 538-540 Ls., m. gy. to pale yel. brn., v. f. gr., much fos.
hash, Crin.
- 540-545 No samples
- 545-550 Sh., gn. gy., lmy., chunky
- 550-552 Ls., v. pale orng., f. gr., f. ool.?
- 552-560 Ls., v. pale orng. to pale yel. brn., v. f. xl., dol.

Virgil and Missouri Series

Douglas and Pedee Groups

- 560-565 Sltst., m. lt. gy.
- 565-572 Sh., m. gy. and gn. gy., v. lmy., chunky.
- 572-576 Sh., gy. red, lmy., chunky.

576-580 Sltst., m. lt. gy., lmy.; some pale red-brn. sltst.
 580-583 Sh., olv. gy., sl. lmy., chunky.
 583-584 Ls., brn. gy., v. f. gr., slty., dol.
 584-589 Sh., m. gy., flky., carb. films and frags.
 589-590 Ls., m. gy. and mod. brn., v. slty., Crin.
 590-617 Sh., m. gy., carb. frags.
 617-620 Sltst., m. lt. gy., v. f. sdy., lmy.
 620-680 Sh., m. gy., carb. frags. and films.
 680-684 Ls., brn. gy., reddish brn., and m. gy., v. f. gr., arg.
 684-686 Sltst., reddish brn., v. f. sdy.
 686-702 Ss., lt. gy., v. f. gr., slty. in pt., por., sl. lmy.
 in pt., mica.
 702-707 Sltst., lt. gy., sl. mica.
 707-710 Sh., gy. red.
 710-714 No samples.
 714-717 Ss., lt. gy., v. f. gr., mica., v. f. carb. mat.
 717-720 Sh., m. gy.
 720-737 Ss., as abv.
 737-740 Sh., olv. gy.
 740-756 Ss., lt. gy., v. f. gr., sl. mica., por.
 756-760 Sh., olv. gy. and m. gy., lmy., chunky.
 760-763 Sltst., m. lt. gy., v. f. sdy.
 763-770 Ss., m. lt. gy., v. f. gr., slty.; lt.-gy. v. f. gr. ss.
 770-780 Sh., olv. gy. and m. gy., lmy., chunky.
 780-784 Ss., lt. to m. lt. gy., v. f. gr., sl. mica., por.,
 carb. frags. in pt.
 784-790 Sh., m. to dk. gy.; blk. sh.
 790-796 Sltst., m. lt. gy., v. f. sdy. in pt.

796-798 Ss., m. lt. gy., v. f. gr.
 798-800 Sh., m. gy., flky.; gn.-gy. sh.
 800-804 Ss., m. lt. gy., v. f. gr., slty., mica.
 804-805 Coal
 805-810 Sh., m. gy.
 810-814 Sltst., m. lt. gy., v. f. sdy., sl. mica.
 814-819 Sh., m. gy., sl. gn. in pt.
 819-821 Ss., lt. gy., v. f. gr., por.

Missouri Series

Lansing Group

Stanton Limestone

821-822 Ls., gy. red, v. f. gr., arg., Crin.
 822-823 Sh., olv. gy.
 823-825 Ls., m. lt. to m. gy., v. f. gr., arg., Fus., Crin., Bry.
 825-830 Ss., m. lt. gy., f. gr., dol., v. tt. in pt.
 830-835 Ss., lt. gy., v. f. gr., v. lmy.
 835-840 Ls., lt. gy., v. pale orng., and pale yel. brn., v. f. gr., Fus., Crin., Bry.?
 840-850 Ls., as abv., Brac., Fus., Crin.
 850-851 Ls., m. lt. gy., v. f. gr., arg.
 851-855 Ls., m. lt. gy. to pale yel. brn., v. f. xl., Fus., Crin., Brac., xl. calc.
 855-858 Sh., dk. gy. to blk.
 858-860 Ls., m. lt. to m. gy., f. gr., sl. arg., v. s. fos. frags.
 860-862 Ls., brn. gy., v. f. gr., tt.
 862-865 Ls., pale yel. brn., v. f. xl.

Vilas Shale

- 865-870 Sh., m. gy., lmy.
870-873 Sh., m. gy., sl. lmy., v. slty.
873-876 Ls., pale yel. brn., v. f. to f. xl.; v. pale orng.
v. f. gr. sl. arg. ls./ dk. sp.
876-880 Sh., m. gy., flky.

Plattsburg Limestone

- 880-890 Ls., m. lt. gy. to v. pale orng., v. f. gr., sl. arg.
in pt., Ost.
890-895 Ls., pale yel. brn., v. f. gr., Crin.
895-898 Ls., brn. gy., v. f. gran., sl. arg.
898-900 Ls., pale yel. brn., v. f. gr., Crin.
900-907 Ls., m. lt. gy. to pale yel. brn., v. f. gr., Crin.;
m.-lt. to m.-dk.-gy. dns. spic. cht.

Kansas City Group

Bonner Springs Shale

- 907-912 Sh., m. gy.
912-923 Ss., lt. to m. lt. gy., v. f. to f. gr., lmy., mica.,
scat. pk. and dk. ~~gr.~~ gr., por. in pt.
923-930 Sh., m. gy.

Wyandotte Limestone

- 930-937 Ls., v. pale orng. to pale yel. brn., v. f. xl., dol.,
Crin.
937-940 Ls., lt. gy., v. f. xl.; pale-yel.-brn. v. f. xl. ls.
940-941 Sh., m. gy.
941-945 Ls., m. lt. gy., v. f. gr., f. ool., Osagia, Crin.
945-950 Ls., pale yel. brn., v. f. gr., wh. m. to c. sil. ool.
950-955 Ls., pale yel. brn., v. f. gr., tt.
955-960 Ls., as abv., Crin., Fus., Spine

- 960-965 Ls., m. lt. to m. dk. gy. and pale yel. brn., mot.,
v. f. gr., sl. arg., calc. vn., hd., Brac., Bry.
- 965-975 Ls., as abv.
- 975-980 Ls., v. pale orng. to pale yel. brn., v. f. xl.;
lt.-to m.-lt.-gy. dns. sl. fig. cht.
- 980-990 Ls., as abv., Crin., Bry.; m.-dk.-gy. dns. spic. cht.

, Lane Shale

- 990-992 Sh., m. gy.
- 992-996 Sh., blk.
- 996-1000 Sltst., m. dk. gy., v. lmy., carb. mat.?
- 1000-1003 Ls., m. gy., arg., glau., Crin., Bry., Gast., shell
hash.
- 1003-1007 Ls., m. lt. gy., v. f. gr., v. arg., sl. gn.
- 1007-1012 Sh., m. gy., lmy.

Iola Limestone 1012-1020

- 1012-1015 Ls., pale yel. brn., v. f. xl., fos.; pale-yel.-brn.
dns. ls.
- 1015-1020 Ls., v. pale orng. to pale yel. brn., v. f. gr.,
fos. frag.

Lower part of Kansas City Group

- 1020-1030 Sh., m. gy., lmy. in pt.
- 1030-1035 Ls., v. pale orng. to pale yel. brn., v. f. xl.
- 1035-1038 Sh., m. dk. gy., lmy.
- 1038-1040 Ls., pale yel. brn., f. gr., ool.?, glau.?, lt.-gy.
dns. cht. / wh. spec.
- 1040-1042 Sh., m. dk. gy., lmy., Fus.
- 1042-1046 Ls., m. dk. gy., v. arg., fos. frag.
- 1046-1048 Ls., brn. gy., v. f. gr., sl. arg.
- 1048-1052 Sh., olv. gy.
- 1052-1056 Sh., dk. gy., lmy., Brac., Bry.
- 1056-1058 Ls., m. lt. to m. gy., v. f. gr., sl. arg., Brac.

1058-1060 Sh., m. dk. to dk. gy., lmy.
 1060-1062 Ls., m. dk. gy., v. f. gr., arg.
 1062-1064 Ls., m. gy. to brn. gy., v. f. xl., sl. arg., Fus. in pt.
 1064-1066 Ls., dk. gy., v. arg., fos. frag.
 1066-1068 Ls., brn. gy., m. ool.
 1068-1071 Ls., pale yel. brn., v. f. gr., sil.; m.-gy. to pale-yel.-brn. dns. cht. and spic. cht.
 1071-1079 Ls., lt. gy. to pale yel. brn., f. gr.
 1079-1082 Sh., olv. gy.
 1082-1090 Ls. pale yel. brn., v. pale orng., and lt. gy., v. f. gr., tt.
 1090-1093 Sh., m. gy., lmy.
 1093-1096 Ls., pale yel. brn., v. f. gr., Crin.
 1096-1102 Sh., dk. gy. to blk.
 1102-1106 Ls., m. gy. to pale yel. brn., v. f. gr.
 1106-1110 Ls., v. pale orng. to pale yel. brn., m. to c. ool., sl. ooc.
 1110-1115 Ls., m. gy., v. f. gr., tt.
 1115-1125 Ls., lt. to m. lt. gy. and v. pale orng., v. f. to f. xl., much xl. calc.
 1125-1132 Ls., pale yel brn., v. f. xl.
 1132-1136 Sh., m. gy.
 1136-1138 Sh., blk.
 1138-1140 Sh., m. gy., lmy.
 1140-1144 Ls., lt. gy. to pale yel. brn., f. gr., Crin., s. fos. frag., xl. calc.
 1144-1151 Ls., lt. gy., v. pale orng., and pale yel. brn., v. f. xl., dol., Crin.
 1151-1155 Ls., v. pale orng., f. gr.; much gy. and blk. sh. caving.

1155-1156 Ls., brn. gy., v. f. gr., sl. arg.

Pleasanton Group

- 1156-1165 Sltst., m. lt. gy. to lt. gn. gy., lmy., mica.
1165-1170 Sh., m. dk. to dk. gy., mica., carb. frag.
1170-1177 Ss., m. lt. gy. to gn. gy., v. f. gr., v. slty.,
lmy., sl. mica. and carb.
1177-1183 Sh., m. dk. to dk. gy.
1183-1186 Ss., m. lt. gy., v. f. gr., slty., sl. lmy., sl. mica.
1186-1190 Sh., m. gy.
1190-1195 Sltst., m. lt. to m. gy., v. f. sdy., sl. mica.
1195-1198 Ss., m. gy., v. f. gr., lmy., v. arg., abnt. Crin.
1198-1200 Sltst., m. gy., sl. lmy., mica., carb.
1200-1203 Sltst., m. gy., sl. lmy.
1203-1215 Sltst., m. gy., lmy.
1215-1217 Ls., brn. gy., v. arg., brn. xl. calc.
1217-1220 Sh., m. gy., slty., sl. mica.
1220-1225 Sltst., m. gy., lmy., sl. mica.
1225-1240 Sh., m. gy., slty., sl. mica.
1240-1250 Sh., m. to m. dk. gy., Gast.
1250-1252 Sh., dk. gy. to blk., lmy.

Des Moines Series

Marmaton Group

- 1252-1254 Ls., m. dk. to dk. gy., v. arg.
1254-1256 Sh., gn. gy., sl. lmy.
1256-1258 Sh., dk. gy. to blk., lmy.; ls. nodules?
1258-1262 Sh., m. gy.
1262-1266 Sh., gn. gy.
1266-1268 Ls., gn. gy. to lt. olv. gy., v. f. xl. to dns., arg.

1268-1270 Ls., pale yel. brn., dns.
 1270-1271 Ls., gn. gy., v. f. gr., arg.
 1271-1275 Sh., gn. gy.
 1275-1277 Ls., pale yel. brn., v. f. gr., Ost.
 1277-1280 Sh., m. gy., lmy.
 1280-1284 Sh., gn. gy., sl. lmy.
 1284-1287 Ls., lt. gy. to v. pale orng., v. f. gr., sl. arg.
 1287-1290 Ls., m. lt. gy., v. f. gr., arg.
 1290-1292 Ls., pale yel. brn. to v. pale orng., v. f. xl., Fus.
 1292-1294 Ls., m. lt. gy., v. f. gr., arg.
 1294-1296 Sh., gn. gy., lmy., chunky.
 1296-1298 Ls., pale yel. brn., v. f. to f. xl.
 1298-1302 Sh., dk. gy. to blk.
 1302-1306 Ls., pale yel. brn., v. f. gr.; brn.-gy. v. f. gr.
 sl. arg. ls.
 1306-1310 Sh., dk. gy. to blk.
 1310-1318 Sh., lt. olv. gy. to m. gy., v. lmy., pel.? of gn.-gy.
 to yel.-brn. v. f. xl. ls.
 1318-1320 Ls., pale yel. brn. to m. lt. gy., v. f. gr., sl. arg.,
 Crin., Brac.
 1320-1322 Ls., v. pale orng. to lt. gy., v. f. gr., sl. arg., dol.
 1322-1325 Ls., pale yel. brn., v. f. gr., Spine, Crin.
 1325-1330 Ss., m. lt. gy., v. f. gr., slty., lmy.
 1330-1333 Sh., m. gy., mica.
 1333-1337 Sh., gn. gy., lmy.
 1337-1343 Ls., m. gy., v. f. gr., sl. arg., hd., tt.
 1343-1347 Sh., blk.
 1347-1348 Coal
 1348-1350 Sh., dk. gy.

1350-1353 Sh., m. lt. gy., lmy.
 1353-1356 Sltst., m. lt. gy., lmy.
 1356-1360 Ss., lt. to m. lt. gy., v. f. gr., slty., lmy.
 1360-1363 Ls., lt. gn. gy., v. arg., dol.
 1363-1366 Ls., v. pale orng., v. f. gr., sl. arg., sl. dol.,
 fos. frag.
 1366-1370 Ls., m. lt. gy., v. f. gr., v. arg., dol.
 1370-1374 Sh., m. dk. gy.
 1374-1376 Ls., m. lt. gy., dns.; sl. yel. brn. tint.

Cherokee Group

1376-1380 Sh., dk. gy., Brac.
 1380-1382 Sh., blk.
 1382-1387 Sh., m. gy., lmy., sl. olv. tint.
 1387-1390 No samples.
 1390-1392 Ls., pale yel. brn. to lt. olv. gy., v. f. gr., dol.,
 arg.; pale-yel.-brn. dns. ls. (cave?)
 1392-1398 Sh., gn. gy., mot. / dk. gy.
 1398-1400 Sh., blk.
 1400-1407 Sh., lt. olv. gy.
 1407-1410 Sltst., m. lt. gy., pyr.
 1410-1412 Sh., blk., much carb. mat.
 1412-1414 Sh., m. gy.
 1414-1419 Sh., gn. gy., lmy.
 1419-1420 Ls., pale yel. brn. to m. lt. gy., dns.
 1420-1427 Sh., gn. gy., mot. / dk. gy.
 1427-1440 Sh., m. gy., lmy. in pt.
 1440-1445 No sample.
 1445-1450 Sh., m. gy.

1450-1451 Ls., m. dk. gy., gran., arg., much fos. hash
 1451-1454 Ss., m. lt. gy., v. f. gr., lmy., slty., carb. mat.
 1454-1455 Coal
 1455-1460 Sh., m. gy., lmy. in pt., Plcy.
 1460-1463 Sh., gn. gy., lmy.
 1463-1466 Sh., dk. gy.
 1466-1468 Sltst., m. lt. to m. gy., mica., sl. brn.
 1468-1469 Coal
 1469-1471 Sh., m. gy., slty.
 1471-1477 Sltst., m. lt. gy., mica., lmy., carb. mat., sl.
 yel. brn. in pt., v. f. sdy. in pt.
 1477-1479 Sh., m. dk. to dk. gy., sl. lmy.
 1479-1480 Coal (cave?)
 1480-1483 Sh., dk. gy., carb.
 1483-1485 Dol., brn. gy. to gy. red, v. f. gr., arg.
 1485-1489 Sh., dk. gy. to blk.
 1489-1490 Ls., dk. gy., v. f. gr., arg.
 1490-1491 Coal (cave?)
 1491-1497 Sh., dk. gy. to blk.
 1497-1500 Dol., dk. gy. to blk., v. f. gr., arg., lmy., Brac.?
 1500-1502 Sh., dk. gy.
 1502-1505 Sltst., lt. gy., v. f. sdy., pyr.
 1505-1508 Sltst., lt. gy., mica.
 1508-1512 Sh., m. gy.; olv.-gy. to reddish-brn. arg. ls. pel.?
 1512-1518 Sltst., lt. gy., sl. mica., reddish-brn. ironstain;
 coal-probably caving.
 1518-1522 Sh., m. to dk. gy.
 1522-1526 Ss., m. lt. gy., v. f. gr., v. slty., lmy., mica.,
 dk. mineral.

1526-1530 Sh., m. gy., lmy. in pt.
 1530-1534 Sh., dk. gy.
 1534-1540 Ls., m. dk. to dk. gy., f. gr., v. arg., Spine.
 1540-1542 Sh., dk. gy.
 1542-1543 Coal
 1543-1556 Sh., m. lt. to m. gy.
 1556-1558 Sh., blk.
 1558-1566 Sh., m. dk. to dk. gy.
 1566-1570 Sh., gn. gy.
 1570-1572 Sh., m. lt. gy., slty.
 1572-1576 Sh., m. dk. gy.
 1576-1578 Sltst., lt. to m. gy., v. f. sdy., pyr., scat. c. sd. gr.
 1578-1582 Sh., m. gy.
 1582-1584 Sh., gn. gy., Brac.?, fos. hash.
 1584-1588 Sh., m. to m. dk. gy.; olv.-brn. Fe-st.; dk.-gy. v. arg. ls. (concretion?)
 1588-1590 Sh., blk.
 1590-1594 Sh., dk. gy.
 1594-1595 Ls., dk. gy., v. arg.
 1595-1598 Sh., blk.
 1598-1599 Coal
 1599-1606 Sh., dk. gy.
 1606-1608 Ls., dk. gy., v. arg., ool.; brn.-gy. to pale-brn. v. f. gr. arg. ls., Brac.?
 1608-1612 Sh., dk. gy.
 1612-1613 Coal
 1613-1617 Sh., dk. gy.
 1617-1620 Sh., blk.

1620-1623 Sh., dk. gy.
 1623-1625 Coal, v. thin calc. vn.
 1625-1628 Sh., dk. gy.
 1628-1630 Sh., blk.; coal, as abv. (cave?)
 1630-1640 Sh., m. to m. dk. gy.
 1640-1650 Sh., as abv.; lenses of v. f. to m. sdy. iron-rich sh.
 1650-1654 Sh., blk.
 1654-1656 Sh., dk. gy.
 1656-1658 Coal
 1658-1660 Sh., lt. olv. gy., non-bdd.?
 1660-1665 Sh., dk. gy.; coal (cave?)
 1665-1670 Ss., lt. gy., f. to m. gr., lmy., scat. c. qtz. gr.,
 reddish-brn. Fe-st., gr., v. tt., Crin.?
 1670-1674 Sltst., m. lt. gy., v. f. sdy., tr. of glau., reddish-
 brn. Fe-st. gr.
 1674-1680 No sample
 1680-1686 Sh., m. gy., reddish-brn. Fe-stn.
 1686-1688 Sh., blk.
 1688-1690 Sh., gn. gy.
 1690-1709 Sh., m. gy., sl. olv. gy. tint, poorly bdd.?, some/
 reddish-brn. Fe-st.? gr. and pel.
 1709-1712 Sh., dk. gy. to blk.
 1712-1714 Ss., m. lt. gy., v. f. gr., slty., lmy.
 1714-1718 Sltst., m. lt. gy.
 1718-1730 Sh., m. dk. to dk. gy., v. f. mica.
 1730-1731 Coal
 1731-1735 Sh., m. lt. to m. gy., poorly bdd.?
 1735-1737 Coal (cave?)
 1737-1742 Sh., dk. gy.

1742-1748 Ss., lt. gy., v. f. gr.; lt.-to m.-lt.-gy. f. gr.
 sl. lmy. ss.
 1748-1751 Sltst., m. lt. gy.
 1751-1758 Sh., dk. gy.
 1758-1770 Sh., m. dk. to dk. gy.
 1770-1773 Coal
 1773-1778 Sh., dk. gy., mica.
 1778-1780 Sltst., m. lt. gy., lmy.
 1780-1789 Sh., dk. gy.
 1789-1790 Coal, prob. impure, much wh. and yel. bloom.
 1790-1800 Sh., m. to m. dk. gy., slty.
 1800-1805 Sh., m. gy., much carb. mat. and frag.
 1805-1810 Sh., as abv., Crin.
 1810-1813 Sh., as abv.
 1813-1815 Sltst., m. dk. gy., v. f. sdy., lmy., tt., scat. f.
 to c. qtz. gr., coal frag.
 1815-1817 Sltst., m. dk. gy., lmy.
 1817-1819 Ss., m. gy., v. f. gr., lmy., brn. spots, Crin.
 1819-1825 Sh., m. dk. to dk. gy.
 1825-1827 Coal
 1827-1828 Sh., m. lt. gy.
 1828-1833 Sh., dk. gy.
 1833-1836 Sh., m. dk. gy., slty., v. lmy.; coal, prob. caving
 1836-1838 Ls., lt. olv. gy. to brn. gy., v. f. gr., arg.
 1838-1842 Sh., dk. gy.
 1842-1844 Sh., blk.
 1844-1845 Coal
 1845-1847 Sh., m. gy.

- 1847-1849 Sltst., lt. gy., lmy.
 1849-1855 Sh., dk. gy.
 1855-1859 Sh., m. lt. to m. gy.
 1859-1862 Sh., blk.
 1862-1863 Coal
 1863-1865 Sh., m. lt. gy., carb. films at random?
 1865-1870 Coal
 1870-1878 Sh., lt. olv. gy. to m. gy., carb. films at random?, non-bdd.?
 1878-1880 Ss., reddish brn., v. f. gr., tt., cmt. / iron; lt.-gy. v. f. gr. slty. ss., tt.
 1880-1883 Ss., m. to dk. gy., v. f. to f. gr., v. arg.
 1883-1885 Sh., dk. gy.
 1885-1887 Sh., blk.; dk.-gy. to blk. Fe.-st.
 1887-1890 Sh., dk. gy.
 1890-1892 Sh., lt. olv. gy., carb. films, poorly bdd.?, cave?
 1892-1900 Sh., m. dk. gy., v. f. mica.
 1900-1903 Sh., blk.
 1903-1904 Coal
 1904-1908 Sh., m. dk. gy.
 1908-1911 Ss., v. lt. gy., v. f. gr., slty., laminae of dk.-gy. sh. and lt.-gy. sltst.
 1911-1915 Ss., v. lt. gy., v. f. to f. gr., scat. m. gr., por.; v. lt. gy. m.-gr. por. ss.
 1915-1920 Sh., lt. olv. gy. to m. gy., v. f. to f. sdy., non-bdd.?
 1920-1925 Ss., wh. to clr., m. to c. gr., scat. v. c. gr., drills lse., some sbrd. to rd. fros gr., some sec. enlargement.
 1925-1932 Ss., brn. gy., f. to c. gr., cmt./iron?, tt.
 1932-1940 Ss., wh. to clr., m. to c. gr., scat. v. c. gr., lse., some rd. and fros. gr. and sec. enlargement.



- 1940-1952 Ss., wh. to clr., f. to c. gr., scat. v. c. gr., lse., some rd. and fros. gr.
- 1952-1956 Sh., m. gy. to lt. olv. gy., v. f. to f. sdy., carb. films; coal, prob. caving.
- 1956-1960 Sh., dk. gy. to blk.
- 1960-1962 Sh., m. gy., v. f. sdy.
- 1962-1965 Sh., m. gy.
- 1965-1968 Mixed-up sample
- 1968-1973 Ss., wh. to gl., m. gr., scat. c. gr., much sec. enlargement.
- 1973-1980 Sltst., lt. gy.
- 1980-1983 Cgl., composed of cht. frags., scat. m. to v. c. qtz. grs., and reddish brn. Fe-st. frags. in a lt. gy., glau., pyr. sltst. mtx.; cht. is dns., qtzs., trip., or fig.
- 1983-1985 Sh., m. gy., glau.

Mississippian-Lower Mississippian Series

Rocks of Osage Age

Keokuk Limestone

- 1985-1990 Ls., pale red, v. f. gr.; lt.-gy. to pale-orng. dns. cht. and spic. cht., some reddish orng. mot.
- 1990-1996 Ls., pale brn. to m. lt. gy., v. f. xl., dol.; cht. as abv.
- 1996-1999 Dol., pale yel. brn., v. f. xl.; v. lt. gy. dns. cht. and spic. cht.
- 1999-2006 Cht., v. lt. gy., dns., sl. trip. in pt.; much dk.-gy. to blk. sh. and f. gr. gl. ss. caving.
- 2006-2014 Ls., lt. gy., gran., Crin.; wh. to lt.-gy. trip. cht. and dns. cht.
- 2014-2027 Ls., pale yel. brn., f. xl., Crin., glau. in pt.; wh. to lt.-gy. dns. op cht. and fig. cht.
- 2027-2033 Ls., pale to mod. yel. brn., v. f. xl., dol., tr. of glau.; wh. to lt.-gy. dns. cht.

- 2033-2040 Ls., pale yel. brn., f. xl., Crin., many v. s. fos. frags.; wh. to lt.-gy. dns. op. cht.
- 2040-2050 Dol., pale yel. brn., v. f. to f. xl., vug.; wh. to lt.-gy. dns. dull op. fnt. fig. cht. and some trip. cht.
- 2050-2068 Dol., and cht., as abv.; some lt. to m.-gy. dns. cht. and m.-dk.-gy. mot. cht.
- 2068-2072 Dol., lt. gy. to pale yel. brn., v. f. xl.; m.-lt.-to m.-gy. dns. op. cht.
- 2072-2078 Ls., v. pale orng., v. f. gr., dol.; cht. as abv.; much v.-pale-orng. trip. cht.

Burlington Limestone

- 2078-2084 Dol., lt. gy. to pale yel. brn., v. f. xl.; wh. to lt.-gy. dns. op. cht.; xl. qtz.
- 2084-2095 Ls., lt. gy., gran., many fos. frag., Crin.?. cht. as abv.; xl. qtz.
- 2095-2106 Ls., v. pale orng., gran., many fos.; wh. to lt.-gy. dns. cht.; xl. qtz.
- 2106-2110 Dol., lt. gy. to v. pale orng., v. f. xl.; wh. to lt.-gy. dns. cht.; xl. qtz.
- 2110-2114 Dol., pale yel. brn. to lt. gy., f. xl.

Rocks of Kinderhook Age

Gilmore City Limestone?

- 2114-2120 Ls., pale yel. brn. to m. lt. gy., f. xl.; abnt. Crin.
- 2120-2124 Ls., m. lt. to m. gy., f. xl., sl. arg., abnt. Crin.

Sedalia Dolomite

- 2124-2130 Dol., lt. gy., f. xl., abnt. Crin.; pale-to mod.-yel.-brn. v. f. gr. dol./pinhole por.
- 2130-2135 Dol., v. pale orng. to pale yel. brn., v. f. to f. xl., v. f. vug.
- 2135-2140 Dol., m. lt. to m. gy., v. f. xl., sl. arg., some pinhole por. and f. vug.

Chouteau Limestone

- 2140-2150 Ls., pale to mod. yel. brn. and brn. gy., v. f. to f. xl.; sl. arg., v. dol.; lt.- to m.-lt.-gy. dns. v. fos. cht. (Bry.)
- 2150-2158 Ls., lt. gy., pale yel. brn., and v. pale orng., v. f. gr.; m.-lt.-to m.-gy. and yel.-brn. dns. and v. f. gran. op. cht.
- 2158-2164 Ls., lt. olv. gy., v. f. xl.
- 2164-2170 Ls., m. gy., v. f. gr., sl. arg., Crin., Brac.; wh. to m.-gy. dns. op. cht.
- 2170-2180 Ls., m. gy., v. f. xl., sl. yel. brn. tint, Crin.
- 2180-2195 Ls., brn. gy., v. f. gr., abnt. Crin., Ost.
- 2195-2197 Ls., as abv., sl. arg., Crin.

Mississippian and Devonian

Chattanooga Shale

- 2197-2205 Sh., m. lt. to m. gy.
- 2205-2208 Sh., gn. gy., sl. dol.
- 2208-2210 Sltst., m. lt. gy., dol., looks like dol.
- 2210-2217 Sh., m. dk. gy.
- 2217-2220 Sltst., and slty. sh., m. lt. gy., dol.
- 2220-2224 Sh., m. dk. to dk. gy.
- 2224-2227 Sltst., m. lt. to m. gy., dol., carb. frag.
- 2227-2233 Sh., m. dk. gy.
- 2233-2240 Sh., m. gy., sl. gn. in pt. (cave?)
- 2240-2243 Sh., m. dk. gy.
- 2243-2252 Sh., m. gy.
- 2252-2256 Sh., m. dk. gy.
- 2256-2290 Sh., m. gy., sl. gn. in pt., lumpy, dusty.
- 2290-2300 Sh., m. gy., splty. to platy, sl. gn. in pt.
- 2300-2307 Sh., m. to m. dk. gy.

- 2307-2315 Sh., m. gy., lumpy.
- 2315-2323 Sh., m. dk. gy.
- 2323-2330 Sh., m. dk. to dk. gy., abnt. dk.-gy. and brn.-gy.
Spr. cases in pt.
- 2330-2332 Sh., m. dk. to dk. gy., lmy., pyr., slty.
- 2332-2340 Sh., m. dk. gy., abnt. Spr. cases as abv.
- 2340-2343 Sh., m. gy.
- 2343-2345 Sh., dk. gy. to blk., Spr. cases.

Misener sand

- 2345-2347 Ss., lt. to m. gy., f. to c. gr., dol., pyr.; v. lt.
to m.-lt.-gy. lmy. qtzs. cht.

Devonian

Hunton Group, upper part

- 2347-2358 Dol., brn. gy., v. f. to f. xl., sl. arg.; pale-to
dk.-yel.-brn. dns. op. cht.
- 2358-2362 Dol., pale yel. brn., f. xl., pinhole por.
- 2362-2363 Sh., m. gy.
- 2363-2370 Dol., gy. brn., f. xl., sl. arg., ltl. pinhole por.
- 2370-2380 Dol., v. pale orng. to pale yel. brn., v. f. xl.,
pinhole por., one Conodont, xl. qtz.
- 2380-2400 Dol., lt. gy. to v. pale orng., v. f. xl.
- 2400-2410 Dol., as abv., scat. f. to m. rd. and fros. sd. gr.;
wh. to lt.-gy. semi-trnsl. dns. cht.
- 2410-2418 Dol., as abv., some brn.-gy. dns. cht.; cht. as abv.
- 2418-2427 Dol., lt. gy., f. xl., many f. to m. rd. and fros.
sd. gr.; lt.-to m.-lt.-gy. dns. semi-trnsl. cht.
- 2427-2431 Dol. and cht. as abv., f. to m. xl. dol.; many qtz.
xl.

Silurian

Hunton Group, lower part

- 2431-2445 Dol., lt. gy., f. to m. xl., many clr. clusters of dol. rhmb., prob. vug., xl. qtz.
- 2445-2460 Dol., lt. gy., f. xl., prob. some m. xl. (spl. drilled v. s.)
- 2460-2485 Dol., lt. gy., f. to m. xl. (spl. drilled v. s.)
- 2485-2496 Dol., m. lt. gy., v. f. to f. xl., pinhole por., few s. vug.
- 2496-2498 Sh., m. gy., sl. gn. tint.
- 2498-2507 Dol., as abv.
- 2507-2511 Sh., m. gy., sl. olv. gy. tint.
- 2511-2515 Dol., v. pale orng., v. f. to f. xl.
- 2515-2520 Dol., lt. to m. lt. gy., v. f. xl.; lt.-gy. dns. cht.
- 2520-2528 Dol., v. pale orng. to pale yel. brn., v. f. xl., pinhole por.
- 2528-2530 Sh., m. to m. dk. gy. (caving?)
- 2530-2552 Dol., v. pale orng., v. f. xl.; lt.-gy. v. f. gr. dol.; lt.-to m.-gy. dns. op. cht. with abnt. dk. gr. of pyr.?

Ordovician-Upper Ordovician Series

Maquoketa (Sylvan) Shale

- 2552-2565 Sh., m. gy., sl. gn. tint in pt.
- 2565-2570 Sh., m. gy., sft., dol.
- 2570-2574 Sh., m. lt. gy., sft., dol.
- 2574-2583 Sh., olv. gy., sl. dol.
- 2583-2589 Sh., m. lt. gy., sft., dol.
- 2589-2595 Sh., m. gy., sl. dol.
- 2595-2600 Sltst., m. gy., dol.
- 2600-2604 Sh., m. gy.

2604-2606 Sh., gn. gy.

2606-2616 Sh., m. gy.

2616-2620 Sh., m. gy., sft., dol.

Ordovician-Middle and Upper Ordovician Series

Viola Limestone

2620-2625 Dol., v. pale orng., f. to m. xl., por. in pt.; v. lt. to m.-lt.-gy. dns. op. mot. spic. cht.

2625-2635 Dol., pale yel. brn. to brn. gy., v. f. gr.; pale-yel.-brn. and v. lt. to m.-lt.-gy. dns. op. cht. with dk. spec.

2635-2640 Dol. and cht. as abv.; some spic. cht.

2640-2650 Dol., v. pale orng., v. f. gr.; m.-lt.-to m.-gy. dns. op. spic. cht. / dk. spec.

2650-2660 Dol., pale yel. brn. to brn. gy., v. f. to f. xl.

2660-2662 Sh., m. gy. to gn. gy.

2662-2668 Dol., as abv.

2668-2670 Sh., m. gy.

2670-2672 Dol., as abv.

2672-2674 No sample.

2674-2680 Dol., v. pale orng., pale yel. brn., and lt. to m. dk. gy., mot., f. to m. xl.

2680-2695 Dol., pale yel. brn. to brn. gy., f. to m. xl., por., vug.

2695-2705 Dol., pale yel. brn. to brn. gy., v. f. xl.; much gy. sh. caving.

2705-2710 Dol., pale yel. brn. to brn. gy., f. xl.; much gy. sh. caving.

2710-2720 Dol., as abv., scat. f. to m. rd. and fros. sd. gr.; much gy. sh. caving.

2720-2735 Dol., pale yel. brn. to brn. gy., v. f. to f. xl. (spl. drilled v. s.)

Ordovician-Middle Ordovician Series

Simpson Group

- 2735-2737 Dol., pale yel. brn., v. f. to f. xl.; v. f. to f. sdy.
- 2737-2738 Sh., gn. gy., sl. dol., scat. v. f. to f. sd. gr.
- 2738-2740 Ss., wh., f. to m. gr., rd., fros., drills lse.
- 2740-2742 Ss., brn. gy. to dk. gy., m. gr., dol., quartzitic in pt., dead oil?
- 2742-2750 Ss., wh., f. to m. gr., rd., fros., drills lse.
- 2750-2752 Sh., dk. gy. to blk.
- 2752-2765 Ss., wh., f. to m. gr., rd., fros., ltl. pyr., drills lse.
- 2765-2830 Ss., wh., m. gr., rd., fros., scat. c. gr., drills lse.
- 2830-2840 Ss., wh., f. to m. gr., rd., fros., drills lse.
- 2840-2850 Ss., as abv., some sec. enlargement of some gr.
- 2850-2862 Ss., wh., m. gr., rd., fros., scat. c. gr., drills lse.

Ordovician and Cambrian

Arbuckle Group

- 2862-2865 Cht., v. lt. to dk. gy., dns., op., f. sdy. in pt.; tr. of lt.-gy. v. f. xl. dol. (cave?)
- 2865-2870 Cht., wh. to lt. gy., dns., op., gran. in pt.; tr. of f. to m. ool. cht.
- 2870-2873 Sh., m. gy. and gn. gy., f. sdy. in pt.
- 2873-2882 Dol., pale yel. brn., f. xl.; wh. to m.-lt.-gy. dns. op. cht., f. to m. ool. in pt.
- 2882-2885 No samples.

Total depth 2885 feet. Note: Samples below 2860 are mostly sand.

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