

(7-24-48)



Grozer Land Association No. 9232 Well.

Browns Creek District, McDowell County, W. Va.

By Hope Natural Gas Company, Clarksburg, W. Va.

Located 0.6 Mi. S. of 37° 25' and 3.33 Mi. W. of 81° 25' - WC

Bramwell Quadrangle

Elevation, 1726' L

Permit - McD - 39

Drilling commenced June 7, 1948; completed Nov. 8, 1948

Shot Nov. 10, 1948 at 3356-3386; with 10 quarts

Gas Well; Volume 298,000 cu. ft.

Rock pressure, 720 lbs.

Fresh water, 50', hole full

Salt water, none recorded

13" casing, 36'; 10", 351'; 8-1/4", 850'; 6-5/8" 2578'; all left in.

Casing cemented: 8" set in 14 bags cement and jelled to surface; 7" set in 14 bags cement

Coal was encountered at 48 - 50'.

Section based on samples from 260' to 4050'

Examined by Russell R. Flowers, Mineralogist.

Top Bottom Thickness

Pottsville Formation, 130, plus, Feet

Top	Bottom	Thickness	Description
260	296	36	Sandstone, very light to light-gray, fine- to medium-grained, subangular to subrounded, argillaceous, somewhat sideritic, chloritic, contains grains of dark (shaly) material
296	302	6	Sandstone, medium to medium dark gray, fine to very fine grained, very silty and shaly, somewhat sideritic, contains many streaks of carbonaceous (shaly) material
302	335	33	Sandstone, light-gray (with medium- to dark-gray shaly, carbonaceous streaks at the top), fine-

grained with some medium grains, fine-grained at the top, silty, argillaceous, chloritic; sideritic, contains many detrital shale fragments; some medium to medium dark gray shale (in the lower part) with large spots and streaks of dark yellowish brown siderite

335	351	16	Sandstone, medium light to medium dark gray and greenish-gray to dark greenish gray, very fine to fine grained, very silty, slightly sideritic; some medium dark to dark-gray, silty shale in the lower part
351	374	23	Siltstone to sandstone (very fine), medium dark gray to dark greenish gray, some brownish-gray (highly sideritic), a few scattered dolomite rhombs, somewhat sideritic, shaly
374	385	11	Siltstone to sandstone (very fine), light- to medium-gray (very shaly) with streaks of medium dark gray (silty) shale, somewhat calcareous and dolomitic
385	390	5	Sandstone, light-gray, fine- to medium-grained, calcareous and dolomitic; clay, medium dark gray, sideritic in part
390	400	10	<i>MACH CHUNK SERIES, 2235 FEET</i> Shale, grayish-brown to very dusky red; siltstone and shale, dark greenish gray; some yellowish-gray to light olive gray limestone
400	408	8	Shale, reddish-gray to blackish-red, some grayish-brown; siltstone and some shale, greenish-gray and dark greenish gray to olive-gray; a large amount of yellowish-gray to light olive gray limestone
408	418	10	Siltstone, medium dark gray to dark greenish gray; some brownish-gray to grayish-brown, silty shale; calcareous in part; some limestone

418	425	7	Shale, very dusky red to grayish-brown and reddish-gray; siltstone and shale, greenish-gray to dark greenish gray and medium dark gray; calcareous in part; some light olive gray to medium-gray limestone
425	435	10	Shale and siltstone to sandstone (very fine), dark greenish gray to medium dark gray, some brownish-gray to grayish-brown; calcareous in part; some olive-gray to medium-gray and grayish-brown limestone
435	448	13	Sandstone, light-gray to greenish-gray, very fine to fine-grained, somewhat chloritic
448	456	8	Shale, dusky-brown to grayish-brown, some brownish-gray to reddish-gray; some sandstone (very fine) to siltstone and shale, dark greenish gray to medium-gray; small amount of varicolored limestone
456	464	8	Shale to siltstone (sandy, very fine), medium dark gray to dark greenish gray, calcareous in part; small amount of grayish- and dusky-brown grayish- and dusky-brown to brownish-gray shale; some varicolored limestone
464	520	56	Sandstone, very light to light-gray with greenish-gray to medium-gray (very silty, shaly) streaks, light gray and very fine (silty) at the top, mostly fine-grained in the middle and lower parts, calcareous in part, contains detrital chlorite and shale grains
520	525	5	Siltstone and silty shale, medium dark to dark-gray speckled with ^c carbonaceous material, somewhat sideritic; some dark greenish gray to medium dark gray shale; a large amount of grayish-brown to brownish-gray shale
525	546	21	Shale, dark-gray to grayish-black; siltstone, light olive gray to medium dark gray with darker limestone spots
546	566	20	Shale, medium dark to dark-gray and grayish-black; some medium light to medium-gray siltstone

566	600	34	Siltstone and shale, greenish-gray to dark greenish gray and medium dark gray, much of this shale contains (dark-gray), highly calcareous) fossil fragments; some grayish-black to black, highly carbonaceous shale; a moderate amount of brownish-gray to grayish-brown shale; some olive-gray to dark yellowish brown limestone
600	617	17	Shale and siltstone, olive-gray to medium dark gray, highly calcareous in part; some dark-gray to black shale
617	631	14	Shale, grayish-black to black ("coaly"), some brownish-black, highly carbonaceous, highly pyritic in part; a very small amount of coal
631	641	10	Siltstone, medium-gray, some medium dark gray, speckled with tiny, dark yellowish brown, siderite spherulites
641	797	156	Shale, grayish-black, very silty; some medium dark gray, shaly, somewhat sideritic siltstone at the top
797	832	35	Shale, grayish- and olive-black to black
832	844	12	Sandstone, very light gray, fine-grained, subrounded, mostly quartz, somewhat calcareous and dolomitic; some light- to medium-gray, very fine, very silty, shaly sandstone and some dark-gray shale at the bottom
844	850	6	No sample
850	860	10	Sandstone, very light to light-gray, fine to very fine grained, calcareous in part; some medium to medium dark gray to dark greenish gray clay; some dark-gray to grayish-black shale
860	893	33	Sandstone, light to medium light gray with some medium- to dark-gray (very silty, shaly) streaks, very fine grained, silty, chloritic, micaceous, and kaolinitic, somewhat calcareous in the lower part; some medium- to dark-gray, very silty, shaly streaks at the bottom

893	900	7	Shale, dark-gray to grayish-black, silty; siltstone to sandstone (very fine, some fine grains), light- to medium-gray and olive-gray
900	910	10	Sandstone, light to medium light gray, very fine to, fine-grained; shale, dark-gray to grayish-black, silty; some medium-gray siltstone
910	915	5	Sandstone (light gray) to siltstone (medium-gray), interbedded with dark-gray to grayish-black, silty shale
915	920	5	Shale, grayish-black, silty; some olive-gray to medium dark gray siltstone
920	1008	88	Sandstone; very light gray, fine to very fine grained in the upper part; white to very light gray, very fine to fine with some coarse and very coarse grains from 956 to 979; white to very light gray, fine-grained from 979 to 992'; white to very light gray, conglomeratic, fine to very coarse grained from 992 to 1002; very light gray, fine- to medium-grained at the bottom (Ravencliff sandstone-from driller's leg)
1008	1030	22	Siltstone, medium dark gray (with dark greenish gray cast), shaly in part, somewhat calcareous and dolomitic
1030	1042	12	Shale, dusky-brown, very silty in part; a large amount of siltstone (sandy, very fine) to shale (silty), dark greenish gray to brownish-gray, somewhat dolomitic
1042	1055	13	Shale, grayish-brown to dusky-brown, silty; some brownish-gray sandy shale to argillaceous sandstone; some dark greenish gray to medium dark gray, fine to very fine sandstone
1055	1065	10	Siltstone, medium-gray to dark greenish gray, highly chloritic, micaceous, kaolinitic; some dusky-brown shale

1065	1075	10	Siltstone, dark greenish gray to medium dark gray; a large amount of grayish-brown to dusky-brown, and some brownish-gray, silty shale
1075	1080	5	Sandstone, light to medium light gray, very fine grained, silty, kaolinitic, somewhat micaceous and and chloritic with carbonaceous specks and streaks
1080	1089	9	Sandstone, very light gray, fine to very fine grained, slightly calcareous and slightly dolomitic, some shale grains
1089	1099	10	No sample
1099	1110	11	Sandstone, very light gray, fine to very fine grained, slightly calcareous and slightly dolomitic
1110	1124	14	Shale, dark-gray, highly streaked and spotted with highly calcareous fossil fragments
1124	1133	9	Limestone, dark-gray to brownish-black, very shaly, highly fossiliferous
1133	1179	46	Limestone, olive-black to brownish-black, very shaly, highly fossiliferous in part; some dark-gray shale, highly streaked and spotted with calcareous fossil fragments (Avis Lime 1124 to 1175 - from driller's log)
1179	1203	24	Clay-shale (soft), and shale (silty), grayish-brown and dusky-brown to very dusky red, calcareous in part
1203	1211	8	Shale, dusky-brown to brownish-gray, silty; some grayish-brown to very dusky red shale, some grayish-brown and brownish-gray to olive-gray, calcareous dolomite
1211	1246 ⁵	45	Clay-shale and shale (soft), grayish-brown to very dusky red, small amount is highly calcareous
1256 ⁶	1292	36	Siltstone and shale (silty), dusky-brown to brownish-gray; a large amount of grayish-brown to very dusky red shale in the upper part and some in the lower part; small amount of siltstone and shale is highly calcareous

1292	1304	12	Shale, brownish-gray to grayish-brown, silty, highly calcareous in part
1304	1317	13	Siltstone and shale (very silty), dusky-brown to brownish-gray, some brownish-gray to dark greenish gray, calcareous
1317	1327-	10	Siltstone, medium-gray, some medium-gray to greenish-gray, argillaceous; shale dark-gray to grayish-black, some grayish-brown to brownish-gray
1327	1337	10	Shale, dark-gray to grayish-black, highly calcareous; some dark greenish gray to medium dark gray, calcareous and dolomitic shale, fossiliferous; some medium to medium dark gray siltstone to sandstone (very fine)
1337	1355	18	Shale, reddish-gray to very dusky red, silty in part; some grayish-brown and some dark greenish gray to dark-gray shale; calcareous and dolomitic in part
1355	1365	10	Siltstone to very fine sandstone, medium to medium dark gray, some greenish-gray to olive-gray, calcareous and dolomitic in part; shale, reddish-gray to brownish-gray and grayish-brown, some medium-gray to grayish-black
1365	1387 1382	22	Shale, dusky-brown to brownish-gray, silty; some shale, medium to medium dark gray, small amount of medium-gray to dark greenish gray
1387	1429	42	Shale, reddish-gray to grayish-red and very dusky red, calcareous in part; some dolomite (shaly) to shale (dolomitic), olive-gray and dark greenish gray to medium dark gray; a little grayish-black to black
1429	1463	34	Siltstone and shale, brownish-gray to dusky-brown, some reddish-gray to very dusky red at the top, some grayish-brown at the bottom, calcareous in part; some shale (dolomitic), dark greenish gray to medium dark gray, a little dark-gray to black

1463	1473	10	Siltstone and some shale, brownish-gray to brownish black and dusky-brown, micaceous, somewhat calcareous; some grayish-brown shale
1473	1483	10	Siltstone, dark greenish gray to medium dark gray (shaly), somewhat calcareous
1483	1512	29	Siltstone, medium light gray to greenish gray, some medium-gray to dark greenish gray, highly micaceous and chloritic, contains kaolinitic material and black carbonaceous streaks, calcareous
1512	1522	10	No sample
1522	1576	54	Shale, medium dark gray; some dark greenish gray and olive-gray (sideritic) siltstone
1576	1622	46	Siltstone, medium- to dark-gray, calcareous, some greenish-gray; shale, medium dark gray, some brownish-gray to grayish-brown at the top
1622	1645	23	Shale, dark greenish gray to medium dark and dark-gray; some grayish-black, dolomitic shale to dolomite (shaly)
1645	1678	33	Siltstone, greenish-gray to medium-gray with some medium dark to dark-gray (very shaly) streaks, contains mica, chlorite, kaolinitic and carbonaceous material, calcareous in part
1678	1687	9	Shale, dark-gray to grayish-black, fossiliferous; some medium dark gray, silty shale; small amount of grayish-brown shale (cavings ?)
1687	1692	5	Siltstone to a very silty shale, medium- to dark-gray
1692	1718	26	Sandstone, white, very fine to fine grained, slightly calcareous; some medium dark to dark-gray shale (a fair large amount at the top); some grayish-brown shale in the lower part
1718	1721	3	Sandstone, white, fine to very fine grained, sub-rounded; a large amount of medium dark to dark-gray, very silty shale

1721	1775	54	Sandstone, white to very light gray, fine-grained with some fine to very fine, subrounded; a large amount of medium-gray siltstone to dark-gray silty shale at 1729 to 1741
1775	1785	10	Shale, dark-gray to grayish-black, very silty; siltstone, medium light to medium-gray, sandy,
1785	1800	15	Sandstone, white to very light gray, mostly clear and glassy quartz, fine-grained, fine to very fine in part, subangular to subrounded, calcareous in part; some grayish-brown to grayish-red shale (cavings ?)
1800	1825	25	Siltstone, brownish-gray to dark greenish gray, highly micaceous, chloritic and kaolinitic, highly dolomitic, some very fine sandstone at the bottom
1825	1843	18	Sandstone (very fine, very silty), medium light to medium dark gray with some greenish-gray at the top, medium light gray to greenish-gray at the bottom, dolomitic, micaceous and chloritic, kaolinitic, some carbonaceous material
1843	1850	7	Shale, brownish-gray to grayish-red, greenish-gray, dark-gray to grayish-black, calcareous and dolomitic
1850	1862	12	Shale, grayish-brown, dark greenish gray to medium dark gray, silty and dolomitic in part
1862	1881	19	Shale, brownish-gray to grayish-brown, silty in part; shale, dark greenish gray to medium dark gray, dolomitic, some limestone nodules
1881	1889	8	Shale, grayish-brown, soft, calcareous in part; shale, dark greenish gray to medium dark gray, dolomitic
1889	1900	11	Shale, grayish-brown to a dusky-brown, micaceous siltstone
1900	1920	20	Dolomite, olive-gray, 20% at the top to 30% at the bottom; shale, dark greenish gray to medium dark gray, some dark-gray to grayish-black, calcareous and dolomitic; some grayish-brown shale

1920	1944	24	Shale, grayish-brown to a dusky-brown siltstone; some greenish-gray to medium dark gray siltstone and shale in the middle and lower parts
1944	1952	8	Shale, dark greenish gray to medium dark gray, some dark-gray to grayish-black, dolomitic to a shaly dolomite
1952	1989	37	Shale, medium dark gray to dark greenish gray, some grayish-black, highly dolomitic to a very shaly dolomite
1989	2017	28	Shale, medium dark gray to grayish-black with carbonaceous streaks, some medium dark gray to dark greenish gray, with some interbedded sandstone white to medium-gray and greenish gray (silty), fine to very fine grained, somewhat dolomitic
2017	2037	20	Siltstone, light- to medium-gray, some medium-gray to greenish-gray, contains dark (shaly) streaks, slightly dolomitic; a large amount of shale, medium dark to dark-gray, some grayish-black
2037	2076	39	Shale (highly calcareous) to a limestone (very shaly), medium dark gray to grayish-black, fossiliferous; some medium to medium dark gray shale
2076	2101	25	Shale, dark greenish gray to medium dark gray, dolomitic in part; shale, medium dark to dark-gray
2101	2136	35	Shale (calcareous) to a very shaly limestone, medium dark gray to grayish-black, some black, fossiliferous; some medium-gray to greenish-gray, silty shale; some pyrite is finely disseminated throughout the interval
2136	2154	18	Dolomite, medium dark to dark-gray, highly calcareous, shaly; some medium dark gray, calcareous shale
2154	2185	31	Siltstone to a very fine sandstone, medium light to medium dark gray, with dark-gray (very shaly) streaks, kaolinitic and micaceous, somewhat dolomitic
2185	2232	47	Sandstone, very light gray, fine to very fine grained, slightly dolomitic, mostly clear and glassy quartz

2232	2279	47	Shale, dark-gray, some medium dark gray and some grayish-black; small amount of dusky yellowish brown (sideritic)
2279	2325	46	Shale, medium dark to dark-gray, fissile
2325	2367	42	Shale (calcareous) to limestone (shaly), dark-gray to grayish-black, fossiliferous; some medium dark gray, fissile shale; small amount of pyrite
2367	2404	37	Limestone, grayish-black, highly oolitic
2404	2420	16	Shale, medium dark gray to dark greenish gray (with grayish-black, very highly calcareous to limestone, highly fossiliferous spots and streaks)
2420	2483	63	Shale, medium dark gray, highly spotted and streaked with calcareous fossil fragments
2483	2488	5	Shale, dark-gray to grayish-black, calcareous
2488	2504	16	Limestone, dark-gray to grayish-black, very shaly to a calcareous shale, oolitic, fossiliferous
2504	2516	12	Shale, dark-gray; some olive-gray siltstone
2516	2537	21	Shale, dark greenish gray to medium dark gray, highly calcareous to a shaly limestone (with light-gray, fossiliferous spots); a large amount of dark-gray shale (cavings ?)
2537	2557	20	Shale, dark-gray, very silty, calcareous with spots and streaks of calcareous fossil fragments
2557	2566	9	Shale (medium dark gray) to limestone (shaly), dark-gray to grayish-black with light- to medium-gray fossil fragments
2566	2600	34	Limestone, dark-gray to grayish-black with light to medium-gray spots and streaks, shaly, very highly fossiliferous, very shaly in the lower part
2600	2625	25	Shale, dark-gray, silty, calcareous
<u>Greenbrier Limestone, 661 Feet</u>			
2625	2632	7	Shale (dark gray) to a highly fossiliferous, shaly limestone, dark-gray to grayish-black with light- to medium-gray spots and streaks

2632	2640	8	Limestone, medium dark to dark-gray with light-gray spots
2640	2663	23	Shale (at the top), brownish-gray to medium dark gray, some dark greenish gray, very highly calcareous; toward the middle and lower part, mostly limestone, medium dark to dark-gray, some dark greenish gray (very shaly), highly oolitic
2663	2670	7	Limestone, dark-gray with a very large amount of light- to medium-gray, oolitic and fossiliferous, contains some very fine doubly terminated quartz crystals
2670	2760	90	Limestone, dark-gray to grayish-black with medium-gray (highly fossiliferous) spots, highly fossiliferous at the top and in the lower part, shaly and a trace of chert at the bottom
2760	2785	25	Limestone, dark-gray to grayish-black with medium-gray spots, shaly, fossiliferous, small amount of dolomitic; trace of chert
2785	2795	10	Shale, medium dark to dark-gray, highly calcareous; some dark-gray, fossiliferous limestone
2795	2808	13	Shale (calcareous) to limestone (shaly), medium dark gray to grayish-black with some light- to medium-gray spots, oolitic and fossiliferous in part
2808	2834	26	Limestone, brownish-gray, mostly oolites with a light-gray calcite cement, fossiliferous
2834	2847	13	Limestone (medium dark gray) to a very highly calcareous shale, medium dark gray to dark greenish gray; both the limestone and the shale contain light-gray calcareous fossil fragments
2847	2865	18	Shale, grayish-brown, some dark greenish gray to olive-gray, highly calcareous and highly dolomitic
2865	2883	18	Limestone, mostly dark-gray to grayish black oolites (with a light- to medium-gray, calcite cement), very silty in part
2883	2895	12	Limestone, medium dark to dark-gray, somewhat silty

2895	2907	12	Limestone, dark-gray to brownish-black, silty, somewhat dolomitic
2907	2965	58	Limestone, grayish-black to brownish-black, very silty, shaly
2965	2983	18	Limestone, medium dark to dark-gray, very silty
2983	3000	17	Shale, dark greenish gray to medium dark gray, very highly calcareous, dolomitic, a moderate amount of medium dark to dark-gray, oolitic limestone
3000	3014	14	Limestone, dark-gray to grayish-black, very silty; some dark-gray to brownish-black limestone
3014	3034	20	Limestone, medium dark gray, silty, somewhat shaly
3034	3039	5	Shale, dark greenish gray to medium dark gray, highly calcareous, dolomitic
3039	3059	20	Limestone, medium light gray to brownish-gray, oolites with calcite and some silt (doubly terminated quartz crystals); some dark greenish gray to dark-gray, calcareous shale
3059	3086	27	Limestone, olive-black to brownish-black, silty, somewhat shaly
3086	3095	9	Limestone, pinkish-gray to medium light gray, mostly oolites (many "break free")
3095	3105	10	Limestone, medium dark gray to olive-gray with light gray spots, dolomitic
3105	3134	29	Limestone, brownish-gray to brownish-black, somewhat dolomitic, somewhat silty
3134	3160	26	Limestone, olive-gray to brownish-gray, silty (many of the silt grains are doubly terminated quartz), mostly oolites (highly cemented) with some tendency to break free
3160	3179	19	Limestone, medium light gray to light brownish gray, oolitic (many break free), some silt (very fine doubly terminated quartz grains)
3179	3190	11	Limestone, brownish-gray to brownish-black somewhat silty

3190	3202	12	Limestone, brownish-black, shaly in part; some dark greenish gray, dolomitic shale
3202	3228	26	Shale, dark greenish gray to medium dark gray, some brownish-gray to grayish-brown; some medium to dark-gray (shaly) limestone; some light-gray translucent chert
3228	3242	14	Limestone, olive-gray to brownish-black, very shaly; small amount of chert and anhydrite
3242	3252	10	Limestone, brownish-black, very shaly
3252	3270	18	Dolomite, olive-gray, shaly to a dark greenish gray, highly dolomitic shale; some white anhydrite
3270	3280	10	Shale, brownish-black to black, dolomitic; some medium dark to dark-gray shaly dolomite; a moderate amount of white anhydrite
3280	3286	6	Dolomite, medium dark to dark-gray

MacGrady and Pocono Formations, 742 Feet

3286	3310	24	Shale, brownish-gray to grayish-brown and dark greenish-gray, dolomitic; some white anhydrite
3310	3316	6	Shale, dark-gray, silty
3316	3325	9	Shale, medium dark to dark-gray; some medium to medium dark gray, dolomitic siltstone; a small amount of siltstone and shale is very highly glauconitic; trace of pyrite
3325	3361	36	Siltstone and shale, medium- to dark-gray; small part is dolomitic, a small amount is glauconitic
3360	3382	22	Siltstone, medium dark gray with dark-gray streaks of shale, calcareous and dolomitic, kaolinitic and micaceous, highly glauconitic in part; a large amount of shale from 3366 to 3377' (3361 corrected to 336 ⁰ ?)
3382	3393	11	Siltstone, medium-dark gray to shale, dark-gray and some grayish-black, dolomitic in part
3393	3421	28	Shale, dark-gray to grayish-black; some medium dark gray siltstone

3421	3432	11	Siltstone to shale (silty), medium dark gray to dark-gray; some grayish-black shale in the upper part
3432	3448	16	Siltstone, medium dark gray, dolomitic in the lower part, some very fine pyrite (disseminated); a large amount of dark-gray shale; part of the shale and siltstone is glauconitic
3448	3453	5	Siltstone, medium dark gray to olive-gray and shale, dark-gray, some grayish-black, glauconitic, highly glauconitic in part, dolomitic; some grayish-brown siltstone and silty shale, dolomitic in part; a moderate amount of pyrite (disseminated crystals)
3453	3456	3	Shale and siltstone, grayish-brown, brownish-gray to medium dark gray (glauconitic), dolomitic
3456	3468	12	Siltstone, medium-gray to dark greenish gray and brownish-gray, micaceous and chloritic, kaolinitic, dolomitic in part; some grayish-brown, silty shale
3468	3500	32	Siltstone, medium to medium dark gray and dark greenish gray, a little lighter in color in the upper part, dolomitic in part; small amount of dark-gray to grayish-black shale
3500	3540	40	Siltstone, medium to medium dark gray, silty; some dark-gray to grayish black shale
3540	3550	10	Siltstone and silty shale, medium- to dark-gray
3550	3560	10	Siltstone, medium light to medium dark gray, some medium light gray to olive-gray, sandy in part, dolomitic in part; a moderate amount of dark-gray shale
3560	3585	25	Siltstone, medium to medium dark gray; shale, dark-gray; some very silty, grayish-black shale
3585	3630	45	Shale, dark-gray to grayish-black; some sandstone, light- to medium-gray, some light olive gray to olive-gray (highly sideritic), very fine grained
3630	3673	43	Shale, dark-gray to grayish-black, some dusky yellowish-brown (highly sideritic)

3673	3715	42	Shale, dark-gray, silty; siltstone, medium to medium dark gray
3715	3933	218	Shale, medium dark to dark-gray, small amount of dark to dusky yellowish brown (highly sideritic); some olive-gray to medium and medium dark gray siltstone
3933	4000	67	Siltstone, olive-gray to medium-gray, some medium dark gray; shale, medium dark to dark-gray, some grayish-black; a small amount of the siltstone and shale is highly sideritic
4000	4016	16	Shale, grayish-black to black; a very small amount of ^{sphalerite} spherulite (Sunbury Shale)
4016	4028	12	Siltstone, medium light to medium dark gray, coarse, much interstitial dark material (Berea); siltstone, olive-gray to medium dark gray

Devonian Shales, 22, plus, feet.

4028	4050	22	Siltstone, olive-gray to medium and medium dark gray; shale, medium dark to dark-gray, some grayish-black
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