

H. C. Greer et. al. No. 8526

Morgan District, Monongalia County, West Virginia.

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

Located 1.2 mi. W. of 79°50' and 0.45 mi. S. of 39°35' -SC- Morgantown Quadrangle.

Elevation, 1462', L.

Permit, Mon-128.

Drilling commenced March 3, 1941; completed November 19, 1941.

Dry hole.

Fresh water at 65 and 245'; salt water at 7456'.

20" casing, 20'10"; 16", 33'10"; 11", 692'4"; 9", 3153'; 7", 7361'.

The position of the top of the well corresponds very nearly to the base of the Greenbrier Limestone and the top of the Lower Mississippian.

Section based on examination of drill cuttings by J. H. C. Martens.

Top Bottom Thickness

Lower Mississippian and Upper Devonian, 6948 feet

Top	Bottom	Thickness	Description
0	35	35	No samples
35	45	10	Sandstone, yellow medium-grained
45	51	6	Sandstone, light-gray with some green and yellow, medium-grained; many grains have crystal faces
51	60	9	Sandstone as above, 70%; dark-gray siltstone, 20%; soft greenish-gray shale, 10%
60	75	15	Sandstone, light-gray with some green and red specks, medium-grained; crystal faces on many of quartz grains; a few flakes of muscovite
75	90	15	Sandstone, light-ored or pinkish, medium-grained; a large proportion of the grains have crystal faces
90	104	14	Siltstone, gray, shaly, micaceous, with siderite concretions and spherulites
104	114	10	Sandstone, light-gray, fine
114	120	6	Sandstone, gray, very fine, 70%; gray shale, 30%
120	125	5	Shale, gray, 60%; gray, very fine sandstone, 40%
125	143	18	Sandstone, gray, very fine; 10 to 30% of gray sandy shale
143	175	32	Sandstone, light-gray, fine to very fine; 10 to 20% of gray shale and siltstone

Top	Bottom	Thickness	
175	198	23	Sandstone, light-gray, fine
198	220	22	Sandstone, nearly white, medium-grained; contains a little siderite
220	285	65	Sandstone, light-gray to white, medium- to fine-grained
285	295	10	Shale, dark-gray; considerable sandstone like that above
295	406	111	Siltstone and silty shale, gray, micaceous; two samples from 392 to 406' contain a little sandstone similar to that below 406'
406	417	11	Sandstone, very light brown, medium-grained
417	422	5	Shale, dark-gray, silty, 60%; light-gray fine sandstone, 40%
422	427	5	Sandstone, light-gray, to brownish, fine, 80%; dark-gray shale, 20%
427	440	13	Shale, dark-gray, silty
440	444	4	Sandstone, gray, fine, highly dolomitic; sand is poorly sorted and contains some coarse grains
444	475	31	Sandstone, very light brown to slightly reddish, slightly dolomitic; mostly fine but contains a few scattered coarse grains
475	480	5	Shale, gray, sandy
480	516	36	Sandstone, light-gray and light-green to white, fine- to medium-grained
516	520	4	Shale, gray, 50%; nearly white sandstone, 50%
520	556	36	Sandstone, light-gray, fine
556	597	41	Sandstone, light-gray, fine to very fine, slightly dolomitic
597	600	3	Siltstone, gray
600	618	18	Sandstone, gray, fine to very fine
618	637	19	Sandstone, gray, very fine, 60 to 80%; gray shale 40 to 20%
637	643	6	Sandstone, very light gray, fine
643	647	4	Shale, dark-gray
647	662	15	Sandstone, gray, very fine, 50%; gray shale and siltstone, 50%
662	671	9	Shale, gray
671	679	8	Shale, dark-gray, silty
679	697	18	Shale and siltstone, gray

Top	Bottom	Thickness	
697	701	4	Shale, red, silty, 50%; gray shale with green sandy streaks, 50%
701	708	7	Shale, gray, 50%; green siltstone, 30%; red shale, 20%
708	721	13	Shale, gray, soft
721	726	5	Shale, red, silty, micaceous, 60%; gray shale, 40%
726	750	24	Shale, gray and green, sandy, 70%; red shale, 20%; very fine green sandstone, 10%
750	762	12	Siltstone, red, shaly, micaceous
762	768	6	Sandstone, nearly white, fine, dolomitic
768	783	15	Shale, grayish-green
783	808	25	Shale, red, silty, 50%; green shale and siltstone, 50%
808	814	6	Shale, gray and green, sandy
814	852	38	Siltstone and silty shale, green, micaceous, 60%; red shale, 40%
852	863	11	Siltstone, red, shaly, micaceous
863	886	23	Shale, red, very silty, micaceous
886	892	6	Siltstone and shale, gray to grayish-green
892	980	98	Shale, red; also small to moderate amounts of red micaceous siltstone and a little green shale and siltstone
980	998	18	Siltstone, gray and green
998	1009	11	Sandstone, light-gray and green, very fine
1009	1020	11	Sandstone, red and white, fine
1020	1033	13	Shale and siltstone, red
1033	1050	17	Sandstone, red, very fine
1050	1056	6	Shale, red, silty
1056	1062	6	Shale, grayish-green, 60%; red shale, 40%
1062	1066	4	Siltstone, red, shaly
1066	1081	15	Sandstone, red and green, fine
1081	1095	14	Shale, gray
1095	1102	7	Sandstone, grayish-green, fine
1102	1108	6	Sandstone, grayish-green, very fine, 70%; gray shale, 30%
1108	1125	17	Sandstone, gray to grayish-green, fine
1125	1135	10	Siltstone, grayish-green, shaly
1135	1145	10	Siltstone, grayish-green, shaly and sandy, 60%; red shale and siltstone, 40%

Top	Bottom	Thickness	
1145	1163	18	Sandstone, gray, fine
1163	1190	27	Sandstone, grayish-green, very fine, shaly; also considerable amounts of siltstone and silty shale of about the same color
1190	1218	28	Shale, gray
1218	1365	147	Shale, gray; up to about 20% of grayish-green siltstone and very fine sandstone
1365	1373	8	Sandstone, grayish-green and brown, fine; contains a few coarse quartz grains
1373	1383	10	Sandstone, light-gray, fine
1383	1395	12	Shale, gray, sandy
1395	1400	5	Sandstone, gray, very fine, shaly
1400	1440	40	Shale, gray silty; small amounts of fine to very fine light-gray sandstone throughout
1440	1506	66	Siltstone and shale, gray to grayish-green
1506	1551	45	Sandstone, gray to grayish-green, very fine, 50%; gray shale and siltstone, 50%; individual fragments show every gradation from sandstone to shale
1551	1575	24	Shale, gray, 50%; gray siltstone and very fine sandstone, 50%
1575	1583	8	Sandstone, gray to dark-gray, very fine
1583	1607	24	Shale, gray, 60%; gray siltstone and very fine sandstone, 40%
1607	1611	4	Sandstone, gray and grayish-green, very fine
1611	1632	21	Siltstone and shale, grayish-green
1631	1651	20	Sandstone, grayish-green, fine to very fine, 50%; gray shale and siltstone, 50%; sandstone contains a few coarse quartz grains
1651	1710	59	Shale and siltstone, gray
1710	1750	40	Sandstone, gray to grayish-green, very fine, 60%; gray shale and siltstone, 40%; most of the material classed as sandstone could just as well be called siltstone
1750	1765	15	Shale and siltstone, gray
1765	1790	25	Siltstone, gray, shaly
1790	1806	16	Sandstone, light grayish green, very fine, partly shaly
1806	1830	24	Siltstone, grayish-green, partly shaly
1830	1860	30	Sandstone, light-gray, fine to very fine; contains some coarse sand grains or small pebbles surrounded by much finer matrix

Top	Bottom	Thickness	
1860	1876	16	Shale, gray
1876	1882	6	Sandstone, brown and gray, fine
1882	1902	20	Shale, gray
1902	1926	23	Sandstone, green and gray, fine to very fine, 60%; gray shale, 40%
1925	1994	69	Shale and siltstone, gray
1994	2032	38	Siltstone, gray shaly
2032	2058	36	Shale, gray, silty
2058	2070	12	Shale, gray, silty, 70%; light-gray and dark-gray, very fine sandstone, 30%
2070	2092	22	Shale, gray
2092	2098	6	Sandstone, brown, fine, slightly dolomitic, 50%; gray shale and siltstone, 50%
2098	2107	9	Sandstone, brown, medium-grained, slightly dolomitic, 60%; gray shale, 40%
2107	2111	4	Sandstone, as above, 70%; gray shale, 30%
2111	2150	39	Shale, gray
2150	2162	12	Sandstone, greenish-gray, dolomitic, very fine
2162	2175	13	Siltstone, gray, dolomitic, 60%; gray shale, 40%
2175	2196	21	Sandstone, gray and brown, dolomitic, 70%; gray shale and siltstone, 30%
2196	2235	39	Shale and siltstone, gray
2235	2248	13	Sandstone, grayish-green, calcareous and fossiliferous, very fine
2248	2291	43	Siltstone, gray, shaly, calcareous and fossiliferous, 60 to 80%; gray silty shale, 40 to 20%
2291	2301	10	Shale and siltstone gray, 70%; very fine light-gray sandstone 30%
2301	2367	66	Siltstone, gray, shaly, calcareous, and fossiliferous
2367	2386	19	Siltstone, gray, shaly, calcareous, and fossiliferous; small amount of dark-brown siltstone
2386	2411	25	Siltstone, gray, shaly, calcareous, and fossiliferous
2411	2424	13	Siltstone and silty shale, gray
2424	2450	26	Shale, gray

Top	Bottom	Thickness	
2450	2505	55	Siltstone and silty shale; siltstone is slightly to moderately calcareous and contains some fossil shells
2505	2533	28	Shale, gray, silty
2533	2546	13	Siltstone, gray, shaly
2546	2555	9	Shale, gray, silty
2555	2612	257	Siltstone, gray, shaly, calcareous and fossiliferous; small amounts of shale are present throughout
2812	2824	12	Siltstone, brown and gray; almost a sandstone
2824	2838	14	Siltstone, gray, shaly
2838	2852	14	No sample
2852	2859	7	Sandstone, dark-brown, very fine; gas at 2855'
2859	2865	6	Siltstone, gray, shaly
2865	2880	15	Siltstone, gray and brown; some very fine sandstone
2880	2953	73	Siltstone, gray, shaly; also some gray shale, mostly silty
2953	2997	44	Siltstone, brown and gray, 70%; gray silty shale, 30%; every gradation between gray shale and gray siltstone
2997	3093	96	Siltstone and shale, gray
3093	3155	62	Shale and siltstone, dark-gray; darker than interval above and mostly has higher proportion of shale
3155	3198	43	Siltstone, brown and gray, shaly; brown color probably due to too much heat in drying
3198	3392	194	Siltstone, light-gray, shaly; small amounts of shale throughout; individual fragments show all gradations between shale and siltstone
3392	3437	45	Shale, dark-gray, silty
3437	3463	26	Shale, very dark gray, silty
3463	3637	174	Siltstone, gray, shaly, micaceous, 80 to 90%; gray shale, 20 to 10%; considerable proportion of siltstone is brown from 3570 to 3614'
3637	3707	70	Shale and siltstone, gray; more siltstone near top and more shale toward bottom of interval
3707	3727	20	Siltstone, dark-brown and gray, shaly and micaceous

Top	Bottom	Thickness	
3727	4118	391	Siltstone and shale, gray; because many of the fragments are gradational between typical shale and typical siltstone no estimates can be made of the relative amounts of the two rocks; many samples have some brown, green, and dark-gray siltstone
4118	4556	438	Shale, dark-gray to somewhat brownish; interstratified with shaly micaceous siltstone, which is mostly lighter gray to grayish-green, but includes some dark-gray and dark-brown; siltstone decreases to rather small amount toward bottom
4556	4837	281	Shale, dark-gray; samples mostly contain about 10% of lighter gray siltstone; not sharply separated from the interval above, but mostly contains less siltstone
4837	4859	21	Siltstone, brown and gray, shaly and micaceous
4859	5404	545	Shale, medium-gray to dark-gray; some lighter gray siltstone and very dark gray to black shale throughout
5404	5445	41	No samples
5445	5880	335	Shale, medium-gray to dark-gray; same as interval 4859-5404'
5880	6442	562	Shale, dark-gray; slightly darker than above; a large proportion of the samples contain small white veins, mostly dolomite
6442	6590	148	Shale, dark-gray; small amounts of very dark gray to black shale are generally present; some of shale is slickensided and there are a few fragments of white dolomite veins
6590	6814	324	Shale, very dark gray to black; more slickensides than in most of the shales above
6814	6862	48	Shale, very dark gray to black, moderately calcareous
6862	6865	3	Shale, very dark gray to black, 80%; light-brown limestone, 20% (perhaps due to contamination)
6865	6874	9	Shale, black, slightly calcareous, very much slickensided
6874	6878	4	Shale, black slickensided, 90%; gray to brownish, very fine textured limestone, 10%

Top Bottom Thickness

6878 6948 70 Limestone, gray, very fine textured; a few fragments of pyrite; also some gray and black shale; after acid treatment the limestone leaves large residue of clayey or shaly material (Tully Limestone)

Hamilton Shales (including Marcellus), 398 feet

6948 6976 28 Shale, dark-gray to black, calcareous

6976 7250 274 Shale, dark-gray to black, slightly calcareous; contains a little vein material

7250 7346 96 Shale, black, slightly calcareous, pyritic; contains some white vein calcite

Onondaga Limestone or Huntersville Chert, 224 feet

7346 7352 6 Shale, black, pyritic, partly calcareous, 80%; brown silty shale with biotite and pyrite, 10%; dark-gray impure limestone, 10%

7352 7356 4 Shale, black, pyritic, calcareous, 50%; dark-gray to black impure limestone, 30%; brown shale as above, 20%

7356 7374 18 Limestone, dark-gray, shaly; also large amount of dark-gray, black and brown shale, perhaps cavings.

7374 7376 2 Chert, brown and light-gray, containing small dolomite rhombs and very scarce glauconite; also some limestone and shale as above

7376 7412 36 Chert, brown and gray, dolomitic; except from 7376 to 7384' where there is some limestone from above there is little or no calcite, but the chert encloses many small dolomite rhombs; there is also a little fine detrital quartz and very scarce glauconite embedded in the chert; all of the samples are a mixture of light-gray and dark-gray to dark-brown fragments with the dark part much in excess

7412 7453 41 Chert, gray to brown, dolomitic; similar to interval above; contains small veins of clear quartz

7453 7457 4 Chert, light- and dark-gray; some of darker fragments in sample from 7453-7456' have small visible pores; considerable amount of clear vein quartz (salt water at 7456'; gas at 7457')

Top	Bottom	Thickness	
7457	7470	13	Chert, gray, with much iron rust; small amount of clear vein quartz, 7457-7460'
7470	7483	13	Chert, gray, with much iron rust; many small disseminated pyrite crystals
7483	7512	25	Chert, gray to light-gray, with much rust stain
7512	7539	27	Chert, dark-gray; some shaly and silty material
7539	7547	8	Shale, very dark-gray
7547	7556	9	Limestone, light-gray, very cherty
7556	7559	3	Shale, dark-gray, cherty
7559	7564	5	Chert, gray, calcareous; contains some small dolomite rhombs
7564	7570	6	Chert, gray, slightly dolomitic; also large amount of dark-gray shale, some of which may be cavings
<u>Oriskany Sandstone, 86 feet</u>			
7570	7591	21	Sandstone, light-gray, medium-grained, calcareous; samples are much stained with iron rust
7591	7607	16	Sandstone, gray, fine, calcareous; large amount of rust stain
7607	7612	5	Sandstone, gray, medium-grained, calcareous
7612	7619	7	Sandstone, gray, fine, calcareous
7619	7645	26	Sandstone, gray to dark-gray, very fine, highly calcareous, slightly dolomitic
7645	7656	11	Siltstone, gray, highly calcareous; only slightly finer than the sandstone above, much of which could also be classed as siltstone
<u>Helderberg Group, 28+ feet</u>			
7656	7664	8	Limestone, gray, very silty and slightly cherty
7664	7684	20	Limestone, light-gray, silty and cherty, slightly dolomitic; portions of this are almost a siltstone
	7684		Total depth