

W. C. Patterson No. 1 (1523) Well

Burning Springs District, Wirt County, W. Va.

By Carnegie Natural Gas Company, Pittsburgh, Pa.

Located 2.91 mi. W. of 81°15' and 4.11 mi. S. of 39°05' -SE- Elisabeth Quadrangle.

Elevation, 869' L.

Permit, Wirt-91

Drilling commenced April 5, 1937; completed August 13, 1937.

Shot Aug. 20, 1937 - depth 4845-4855'.

Gas volume 40,000 cu. ft. in Oriskany; 50,000 cu. ft. above.

Oil, 1 bbl. in Oriskany, 20 bbls. above.

10" casing, 239'; 8 1/2", 1160'; 7", 4678'.

Section based on samples from 188 to 4895' examined by J. H. C. Martens.

Well starts in Conemaugh Formation about 680 feet below Washington Coal horizon.

Top Bottom Thickness

Pennsylvanian, 878+ feet

Top	Bottom	Thickness	
0	30	30	Soil, dark
30	75	45	Red rock
75	95	20	Slate, white
95	100	5	Red rock
100	188	88	Slate and shells
188	198	10	Shale, red and green, calcareous
198	217	19	Siltstone, grayish-green, micaceous; contains many siderite spherulites
217	232	15	Shale, greenish-gray, silty, micaceous
232	245	13	Siltstone, gray, micaceous
245	250	5	Siltstone, light-gray, 50%; light-gray shale, 30%; dark-gray to black shale, 20%
250	257	7	Coal, 20%; dark carbonaceous shale, 20%; very light gray clay or soft shale, 60%
257	261	4	Shale, light-gray, soft
261	289	28	Sandstone, white and light-green, medium- to fine-grained, micaceous and slightly calcareous
289	309	20	Sandstone, nearly white, medium-grained
309	328	19	Shale, gray, very silty

Top	Bottom	Thickness	
328	342	14	Siltstone, gray; also some shale and fine sandstone
342	356	14	Sandstone, very light-gray, fine to very fine
356	365	9	Siltstone, gray, micaceous
365	372	7	Coal, 5%; gray to dark-gray shale, 55%; gray siltstone, 40%
372	379	7	Shale, gray, with many siderite spherulites
379	385	6	Shale, light-brown to nearly white, soft; trace of coal
385	394	9	Siltstone, gray, sandy
394	424	30	Sandstone, nearly white, medium- to coarse-grained; calcareous 406-424'
424	442	18	Siltstone, gray; many siderite spherulites
442	454	12	Shale, dark-gray, silty
454	460	6	Shale, nearly white, soft; contains small siderite rhombs
460	466	6	Shale, light-brown, soft
466	472	6	Shale, very dark gray silty
472	478	6	Shale, light-gray, 70%; black shale with a little coal, 30%
478	489	11	Siltstone, dark-gray, sandy
489	495	6	Sandstone, gray, fine, shaly
495	502	7	Siltstone, gray
502	508	6	Shale, and siltstone, gray
508	520	12	Shale, dark-gray to black, 80%; coal, 20%
520	532	12	Siltstone, dark-gray, micaceous
532	538	6	Shale, light-gray, very sandy
538	547	9	Sandstone, gray, fine, micaceous
547	617	60	Sandstone, very light brown, medium-grained
617	623	6	Shale and siltstone, dark-gray, 90%; coal, 10%
623	638	15	Shale, black
638	648	10	Siltstone, dark-gray
648	660	12	Sandstone, very light-brown, fine
660	678	18	Shale, dark-gray to black
678	690	12	Shale, black, very silty
690	707	17	Siltstone, black; contains abundant fossil shells, probably marine
707	743	36	Shale, dark-gray, very silty, 90%; coal, 10%
743	776	33	Siltstone, dark-gray, sandy and shaly

Top	Bottom	Thickness	
776	782	6	Sandstone, gray, very fine
782	821	39	Siltstone, black, micaceous
821	844	23	Shale, black, very silty
844	878	34	Sandstone, white, medium to coarse
<u>Mauch Chunk Group (?), 15 feet</u>			
878	887	9	Limestone, brown
887	893	6	Shale, gray and green, calcareous, 50%; light-brown limestone, 50%
<u>Greenbrier Limestone, 127 feet</u>			
893	904	11	Limestone, light-brown
904	915	11	Limestone, very light brown, oolitic
915	940	25	Limestone, nearly white
940	957	17	Limestone, light-brown
957	963	6	Limestone, nearly white
963	990	27	Limestone, light-brown to nearly white, sandy
990	995	5	Limestone, very light brown, somewhat dolomitic
993	1007	14	Limestone, very light brown, very sandy; contains some oolites
1007	1016	9	Dolomite, nearly white, sandy
1016	1020	4	Sandstone, very light brown, highly dolomitic
<u>Pocono Formation, 465 feet</u>			
1020	1028	8	Sandstone, light-gray with yellow specks, fine
1028	1038	10	Sandstone, white, very coarse; a little yellow material in cement
1038	1050	12	Sandstone, very light brown, fine; contains a few coarse grains
1050	1054	4	Shale, dark-gray, with siderite spherulites
1054	1060	6	Sandstone, white, coarse
1060	1087	27	Sandstone, very light brown, medium-grained, slightly dolomitic; some coarse to very coarse grains
1087	1426	339	Shale and siltstone, gray; variations of individual samples not described in detail
1426	1460	34	Shale, dark-gray, silty
1460	1483	23	Shale, black (Sunbury Shale)
1483	1485	2	Sandstone, nearly white, very fine, some highly pyritic (Berea Sandstone; thickness estimated)

Top	Bottom	Thickness	
<u>Devonian Shales, 3177 feet</u>			
1485	1544	59	Siltstone, light-gray to grayish-green, partly shaly, some slightly calcareous; includes some fragments of nearly white very fine sandstone
1544	1560	16	Siltstone, dark-gray
1560	1577	17	Siltstone, light-gray, shaly
1577	1594	17	Sandstone, light-brown, very fine, 70%; gray siltstone and silty shale, 30%
1594	1622	28	Siltstone, gray to grayish-green; individual fragments show all gradations from silty shale to very fine nearly white sandstone
1622	1689	77	Siltstone and silty shale, gray to grayish-green
1689	1756	67	Siltstone, gray; also some gray shale and nearly white very fine sandstone
1756	1898	142	Siltstone, light-gray to grayish-green, 60 to 80%; gray shale, 40 to 20%
1898	1998	100	Siltstone, gray, shaly, micaceous; samples contain small amounts of true shale; not much different from the interval above
1998	2177	179	No sample (oil and gas at 2018, 2165')
2177	2187	10	Siltstone and silty shale, gray
2187	2466	279	No sample (oil and gas at 2265')
2466	2477	11	Siltstone, light-gray, shaly
2477	2571	94	Siltstone, light-gray to grayish-green, 50 to 70%; gray shale, 50 to 30%
2571	2716	145	Siltstone and shale, gray; proportions of shale and siltstone vary considerably in individual samples, but there is generally a little more shale than in the interval above; the shale contains a few very small spherical pyrite concretions
2716	3135	419	Shale and siltstone, gray; also small amounts of very dark gray to black shale; in most of this interval there is considerably more shale than siltstone
3135	3156	21	Shale, gray to dark-gray, silty

Top	Bottom	Thickness	
3156	3219	63	Shale, gray; small amounts of dark-gray shale and light-gray siltstone throughout
3219	3388	169	Shale, gray, with silty streaks, 70 to 90%; very dark gray shale, 30 to 10%
3388	3620	232	Shale, gray to very dark gray; color varies considerably but is mostly darker than in shales above
3620	4016	396	Shale, gray, mostly a little lighter and more uniform in color than the shale above; gradually becomes darker toward bottom and is not sharply separated from the interval below
4016	4271	255	Shale, dark-gray
4271	4501	230	Shale, dark-gray to very dark gray and black
4501	4531	30	Shale, dark-gray to grayish-green
4531	4662	131	Shale, very dark gray to black (depth of top of Huntersville chert and base of shale taken from drillers record)
<u>Huntersville Chert, 190 feet</u>			
4662	4667	5	Limestone, brown; does not contain any pure chert but acid treatment leaves a large insoluble residue which is apparently leached, porous chert; samples also contain much shale cavings and brown siltstone with biotite and pyrite
4667	4680	13	Limestone, brown to light-brown, very cherty
4680	4718	38	Limestone, light-brown, very cherty; much of the chert is very light gray and translucent; the chert content of most of the samples is so high that they could just as well be called calcareous chert
4718	4735	17	Limestone, brown, very cherty; slight traces of glauconite, 4720-4723'
4735	4772	37	Limestone, light-brown to very light brown, very cherty
4772	4822	50	Limestone, light-brown, very cherty; several samples contain a little silt and very small amount of glauconite; show of oil at 4783', SIM
4822	4827	5	Limestone, brown, very cherty, silty, and glauconitic
4827	4834	7	Limestone, light-brown, very cherty
4834	4836	2	Limestone, brown, very cherty, silty, and glauconitic

Top Bottom Thickness

4836 4838 2 Limestone, light brown and gray, cherty and sandy; contains many fossil shell fragments

4838 4852 14 Limestone, light-brown to light-gray, very cherty; contains some silt and very fine sand; a little glauconite  
4838-4845' (gas 4851', 40,000 cu. ft.)

Oriskany Sandstone, 43+ feet

4852 4859 7 Sandstone, nearly white, fine, somewhat calcareous

4859 4895 36 Sandstone, light-gray to white, fine, slightly calcareous  
(small amount of water) 4882-4886'

4895 Total depth