



8 EC (C-5)  
 2.77-5  
~~2.73 5~~  
~~6.01~~  
 5.01W of 8130  
 482W

1500  
 2.675  
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7 1/2

2.675  
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New Location   
 Drill Deeper  
 Abandonment

Company **COLUMBIAN CARBON COMPANY**  
 Address **Box 873 CHARLESTON, W.VA.**  
 Farm **LESLIE THOMPSON ETAL**  
 Tract \_\_\_\_\_ Acres **244** Lease No. **CT 156**  
 Well (Farm) No. **1** Serial No. \_\_\_\_\_  
 Elevation (Spirit Level) **746.25**  
 Quadrangle **BELLEVILLE 8-8273 W001**  
 County **WOOD** District **STEELE**  
 Engineer **C.A. Branham**  
 Engineer's Registration No. **683**  
 File No. \_\_\_\_\_ Drawing No. **W 19/48**  
 Date **APRIL 9, 1948** Scale **1" = 660'**

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION  
 CHARLESTON

**WELL LOCATION MAP**  
 FILE NO. **W00-252**

+ Denotes location of well on United States Topographic Maps, scale 1 to 62,500, latitude and longitude lines being represented by border lines as shown.  
 - Denotes one inch spaces on border line of original tracing.

Samples 22-C (0-4907) 5-6 250 Deep Well

WEST VIRGINIA DEPARTMENT OF MINES  
OIL & GAS DIVISION  
W E L L R E C O R D

Permit No. Woo 252  
Belleville Quad.

Gas Well  
CASING & TUBING

Company	Columbian Carbon Company		
Address	Box 873, Charleston, 23, W.Va.	16 75#	3 7'2 Same
Farm	Leslie Thompson et al Acres 244	13 3/8 48#	771'4 Pld.
Location	Pond Creek	10 1/2 32#	1048'3 Pld.
Well No.	1 GW 1069 Elev. 746.25' G	8 1/2 24#	1894 Pld.
District	Steele Wood County	6 5/8 24#	4785'5 Same
Surface	Leslie Thompson et al, Rockport, W.Va.		
Mineral	Same ( for further addresses contact CCC)		
Commenced	4-26-48		
Completed	8-12-48		Midget B.H.Packer
Date shot	8-12-48	Depth 4842' to 4882'	Size 6 5/8
		with 267# Atlas Gelatin	Depth 4750' SLM
Open flow	12/10ths M in 6 5/8" 24#		
Volume	4,721,000 C.F.		No coal
Rock Pressure	1925 lbs. 5 das		
Fresh Water	570' 3-14" blrs. per hr.		
Salt Water	1075' 1-13" blr. per hr.		
	1655' H.F.		

Red Rock	0	20	Sand	1875	1890
White Slate	20	26	Slate	1890	2430
Red Rock	26	38	Lime	2430	2436
Slate	38	58	Slate & Shells	2436	3705
Red Rock	58	70	Brown Shale	3705	4021
Slate	70	115	White Slate	4021	4385
Red Rock	115	128	Brown Shale SLM 4725	4385	4695 DLM
Sand	128	170	Corniferous Lime	4725	SLM 4843
Red Rock	170	198	Oriskany Sand	4843	4894
Slate	198	300	Dark Lime - Helduberg	4894	4914 DLM
Red Rock	300	325			4913 SLM
Slate	325	395	Total Depth		4913
Red Rock	395	410			485
Slate	410	430	Gas Pays: 4845-49 22/10 W 6 5/8" 1,773 M		
Red Rock	430	450	4874-80 35/10 W 2" 249 M		
Slate	450	481			
Red Rock	481	537	CEMENT RECORD:		
Slate	537	559	5-15-48 13 3/8" casing, ran 36 sacks		
Sand	559	620	cement with dump bailer. C.C.C.		
Slate	620	648			
Red Rock	643	650	5-29-48 10 1/2" casing. Ran 18 sacks		
Slate	650	670	aquagel. Circulation and returns. C.C.C.		
Sand	670	709			
Slate	709	720	6-14-48 8 5/8" casing. Ran 22 sacks		
Red Rock	720	764	Aquagel. Returns O.K. C.C.C.		
Soft Lime	764	770			
Slate	770	775	7-22-48 6 5/8" casing. Ran 50 bags		
Red Rock	775	812	aquagel thru 2" tubing to float pipe		
Slate	812	825	in. C.C. Crew		
Sand	825	838			
Slate	838	890			
Red Rock	890	911			
Slate	911	930			
Red Rock	930	955			
Slate	955	1038			
Sand 1040 DLM-1039 SLM	1038	1122			
Slate	1122	1128			
Lime	1128	1140			
Slate	1140	1195			
Sand	1195	1218			
Slate	1218	1233			
Sand	1233	1288			
Slate	1288	1387			
Sand	1387	1444			
Slate	1444	1515			
Sand	1515	1555			
Slate	1555	1595			
Sand	1595	1860			
Lime 1865 DLM-1864 SLM	1860	1875			

4725	4843	4894
746	746	746
3979	4097	4148

Steele District, Wood County, W. Va.

By Columbian Carbon Co., Box 873, Charleston, W. Va.

Located 2.8 mi. S. of 39° 05' and 0.03 mi. W. of 81° 30'--SC--Belleville Quadrangle.

Elevation, 746.25' L.

Permit Woc-252.

Drilling commenced Apr. 26, 1948; completed Aug. 12, 1948.

Shot Aug. 12, 1948, at 4842-4882', with 267# Atlas gelatin.

Gas well; volume, 4,721,000 cu. ft.

Rock pressure, 1925 lbs. in 5 days.

Fresh water, 570', 3 -14" blrs. per hour.

Salt water, 1075', 1 -10" blr. per hour; 1655', hole full.

16" 75# casing, 377' 13-3/8" 48#, 774' (pulled); 10 3/4" 32#, 1048' 3" (pulled);  
8 1/2" 24#, ;894' (pulled); 6 5/8" 24#, 4785' 5".

No coal was encountered.

Section based on samples from 0 to 4907'; examined by Russell R. Flowers.

Top. Bottom. Thickness.

DUNKARD GROUP AND MONONGAHELA FORMATION, 630 FEET			
Top	Bottom	Thickness	Description
0	38	38	Clay, grayish-red to grayish-brown to moderate yellowish-brown; small amount of limestone (as nodules), olive-gray to dark yellowish brown
38	50	12	Clay-Shale, pale yellowish brown to dark yellowish brown to moderate-brown; siltstone and shale, light olive gray to greenish-gray to dark olive gray and dark greenish gray; small amount of limestone (as nodules), dark yellowish brown
50	88	38	Clay, grayish-brown to very dusky red; small amount of greenish-gray, highly micaceous siltstone; a small amount of dark yellowish brown limestone
88	108	20	Siltstone to fine sandstone, greenish-gray, very highly micaceous, moderately dolomitic; shale, brownish-gray; small amount of greenish-gray to dark yellowish brown and moderate-brown limestone
108	128	20	Clay, very dusky red to grayish-brown, with streaks of light greenish gray; small amount of greenish-gray shale and siltstone (cavings?); small amount of olive-gray to dark yellowish gray limestone
128	167	39	Sandstone, light olive gray to greenish-gray, fine- to medium-grained, subangular, highly argillaceous (clays and cementing material), highly micaceous (muscovite and biotite)
167	197	30	Clay, grayish-brown to moderate-brown; minor amount of limestone (as nodules), dark to dusky yellowish brown, grayish-red; sandstone, greenish-gray, highly micaceous, fine-grained (probably cavings)
197	215	18	Siltstone to very fine sandstone, greenish-gray, highly micaceous, moderately dolomitic and calcareous; shale, greenish-gray, moderately calcareous; clay, moderate-brown to grayish-brown (probably cavings)
215	245	30	Sandstone, light to dark olive gray to greenish-gray, very fine to fine-grained, subangular to subrounded, moderately calcareous and dolomitic, very highly micaceous (muscovite and biotite); clay, grayish-brown (cavings?)
245	251	6	Clay, grayish-brown to very dusky red; small amount of moderate yellowish brown; small amount of limestone (as nodules), brownish-gray
251	267	16	Clay-shale, light to dark greenish gray, light olive to grayish-brown; moderate to dark yellowish brown, highly sideritic shale (siderite as oolites and spherulites); sideritic oolites and spherulites are also scattered through much of

Top. Bottom. Thickness.

Top.	Bottom.	Thickness.	
			the greenish-gray shale and siltstone, some of the shale is brownish-black from the concentration of the sideritic material
267	283	14	Siltstone and shale, light to dark greenish gray, highly micaceous in part, moderately calcareous, dolomitic in part; shale, olive-gray to moderate yellowish brown, sideritic, calcareous
283	288	5	Siltstone, shale, and clay, greenish-gray to olive-gray, grayish-brown to moderate-brown, moderately calcareous
288	298	10	Clay, grayish-brown to very dusky red, 70%; shale and siltstone, greenish-gray to grayish-brown, calcareous, 30%; small amount of moderate yellowish brown to grayish-brown limestone (as nodules)
298	320	22	Fine-grained sandstone to siltstone to shale, greenish-gray to dark greenish gray to olive-gray, highly micaceous; small amount of moderate-brown to grayish-brown clay and shale; small amount of light to dark yellowish brown limestone
320	332	12	Clay, grayish-brown to very dusky red, moderate to dark yellowish brown, moderately calcareous
332	343	11	Sandstone (fine-grained) to siltstone (coarse), light olive gray to greenish-gray, moderately dolomitic and calcareous, highly micaceous; toward the bottom, a shale, light to dark olive gray to greenish-gray to brownish-gray, partly silty and micaceous
343	360	17	Clay and shale, grayish-brown, with small amounts of light olive gray, brownish-gray, and greenish-gray, 70%; siltstone and shale, brownish-gray to light olive gray to greenish-gray, micaceous, moderately dolomitic and calcareous in part, 30%; limestone nodules, grayish-brown to moderate yellowish brown, sideritic shale
360	373	13	Clay, grayish-brown to very dusky red; minor amount of light greenish gray to greenish-gray, silty, micaceous clay to argillaceous siltstone; limestone nodules, grayish-red to brownish-gray to yellowish-brown in small amount
373	401	28	Clay, grayish-brown to very dusky red, brownish-gray to light olive gray to greenish-gray (small amount), 80%; sandstone (fine) to siltstone (coarse), light olive gray to greenish-gray, micaceous, moderately calcareous, 20%; limestone nodules, greenish-gray to light olive gray to brownish-gray
401	418	17	Siltstone, (coarse, sandy) and shale, light olive gray to greenish-gray, partly micaceous, partly calcareous, 50%; clay, moderate-brown to grayish-brown to very dusky red, small amount of brownish-gray to olive-gray, 50%; trace of brownish-gray to greenish-gray limestone
418	446	28	Clay, grayish-brown to grayish-red, with light olive gray to greenish-gray at the top; small amount of moderate yellowish brown at the bottom; moderately calcareous limestone nodules, olive-gray to grayish-brown to grayish-red in small amount
446	481	35	Sandstone (fine) to siltstone (coarse) and shale, light olive gray to greenish-gray; the sandstone and siltstone are highly micaceous, partly calcareous, and dolomitic; trace of greenish-gray limestone
481	537	56	Clay, very dusky red, with minor amount of grayish-brown and moderate yellowish brown, highly calcareous and dolomitic
537	559	22	Shale and siltstone, greenish-gray to greenish-black, micaceous and chloritic; small amount of greenish-gray to yellowish-brown, highly sideritic shale

(CONTINUED ON PAGE 3)

Top.	Bottom.	Thickness.	
559 -	613	54	Sandstone, yellowish-gray to light greenish gray, medium- to coarse-grained, angular to subangular, (many of the largest grains are rounded and frosted), somewhat shaly and argillaceous (probably mostly calings), good porosity
613 -	625	12	Sandstone (medium- to fine-grained) and siltstone, light olive gray to greenish-gray, moderately calcareous in part, micaceous
625 -	630	5	Clay, shale, and siltstone, light to dark olive gray to greenish-gray, siltstone is micaceous, medium light gray clay with carbonaceous streaks; small amount of pyritic, highly carbonaceous shale; trace of coal (Pittsburgh Coal?), trace of dark yellowish brown sideritic shale
CONEMAUGH FORMATION, 490 FEET			
630 -	637	7	Clay, medium light gray to light olive gray, with carbonaceous streaks, small amounts of grayish-red, black (highly carbonaceous and pyritic), moderate yellowish brown; small amount of medium-gray to greenish-gray shale; trace of coal; trace of limestone and siderite
637 -	643	6	Clay, grayish-brown to very dusky red, medium light gray to light olive gray; greenish-gray, silty, micaceous clay; limestone nodules, light olive gray, brownish-gray, grayish-red in minor amount; trace of black, carbonaceous shale
643 -	668	25	Sandstone, siltstone to silty clay, greenish-gray, highly micaceous, micaceous streaks give a schistose structure, very highly sideritic, 50%; clay, grayish-brown to grayish-red, clastic texture, moderate to dark yellowish brown (with dark-brown, sideritic spherulites), medium light gray to light olive gray, 45%; limestone, nearly white to greenish-gray to grayish-brown, 5%; trace of dark yellowish brown, sideritic shale
668 -	674	6	Clay, grayish-red, very dusky red, grayish-brown, clastic texture, moderate yellowish brown (sideritic) to light olive gray; limestone nearly white to greenish-gray to brownish-gray in minor amount
674 -	680	6	Sandstone, light olive gray, fine- to medium-grained, subangular to subrounded, highly calcareous, mostly quartz grains (many of which are clear and glassy), slightly micaceous
680 -	709	29	Sandstone, light olive gray to olive-gray to greenish-gray, very highly micaceous streaks, argillaceous (cement), slightly calcareous, very fine to fine-grained, with an occasional medium-sized grain, subangular to subrounded; toward the bottom (692+), clay, grayish-brown to grayish-red and small amounts of moderate yellowish brown, slightly sideritic clay; at the bottom, 10 feet of a medium- to fine-grained equivalent of the above, very fine to fine-grained sandstone
709 -	726	17	Clay, medium light gray to medium-gray to olive-gray, grayish-red to grayish-brown to brownish gray; calcareous clay to argillaceous limestone in part, same colors as clay; small amount of carbonaceous material scattered throughout the clay
726 -	764	38	Clay, grayish-brown to grayish-red to grayish-red purple, moderate to dark yellowish brown; small amount of limestone nodules, the same hue of color as that of the clay but paler
764 -	770	6	Siltstone and silty shale, greenish-gray to dark greenish gray, highly micaceous; small amount of light to dark olive gray limestone

Top.	Bottom.	Thickness.	
770	775	5	Clay-shale, light to dark greenish gray (silty, partly micaceous), grayish-brown to brownish-gray; small amount of light greenish-gray to brownish-gray limestone
775	780	5	Clay, grayish-brown to very dusky red, calcareous, 80%; light greenish gray to greenish-gray siltstone and silty clay, 20%; trace of light greenish gray to brownish-gray limestone; trace of moderate to dark yellowish brown, sideritic clay
780	820	40	Clay, a marble mixture of moderate yellowish brown to grayish-red and grayish-brown for the top ten feet, moderately calcareous, decrease in the yellowish-brown toward the bottom but increase of grayish-red purple; trace of dark yellowish brown, sideritic shale; trace of hematite; small amount of limestone (as nodules), partly sideritic, grayish-brown to brownish-gray to light greenish gray
820	832	12	Sandstone, light olive to greenish-gray, medium-grained, subangular to subrounded, occasional rounded, frosted, coarse quartz grains, chloritic, moderately to highly calcareous
832	836	4	Sandstone, light olive gray to greenish-gray, fine- to medium-grained, subangular to subrounded, micaceous and chloritic, slightly to moderately calcareous
836	870	34	Clay, olive-gray to grayish-olive, moderate olive brown to moderate yellowish brown, light greenish gray to greenish-gray (micaceous, silty), very dusky red to grayish-brown, small amount of olive-gray to brownish-black (carbonaceous); trace of hematite; small amount of pale olive to moderate olive brown to brownish-gray limestone
870	876	6	Limestone, light to dark brownish gray, pale-olive to olive-gray to medium-gray, fossiliferous, partly dolomitic; clay, medium- to light-gray to light olive gray, grayish-brown, pyritic
876	885	9	Clay, medium light gray to light olive gray, pyritic, minor amount of grayish-brown and moderate olive brown, highly calcareous, 80%; limestone, pale-olive and light brownish gray to olive-gray and brownish-black, 20%; trace of hematite; trace of coal
885	911	26	Clay, grayish-brown to very dusky red to grayish red purple, moderate yellowish brown, moderately calcareous; minor amount of limestone as nodules, medium light gray to light olive gray to brownish-gray, grayish-brown to grayish-red
911	917	6	Clay, light greenish gray, light olive gray to moderate and dark yellowish brown, grayish-brown to grayish-red to grayish red purple, moderately calcareous; small amounts of limestone (nodules), medium light gray to light olive gray, brownish-gray, grayish-brown, and grayish-red
917	926	9	Siltstone, greenish-gray to dark greenish-gray, sandy in part, slightly to moderately calcareous, micaceous and chloritic, slightly sideritic in part
926	952	26	Clay-shale, greenish-brown to very dusky red; clay, grayish-brown, moderate yellowish brown, with small amounts of light olive gray and grayish red purple; minor amount of limestone (nodules), greenish- to brownish-gray, moderate yellowish brown to grayish-brown
952	979	27	Siltstone and shale, with small amount of sandstone, greenish-gray to dark greenish gray, moderately to highly calcareous, partly micaceous, small yellowish-brown siderate spherulites

Top. Bottom. Thickness.

Top.	Bottom.	Thickness.	Description
			are scattered through much of the siltstone; small amount of silty, greenish-gray limestone; large amount of clay and clay shale, grayish-brown to grayish-red and yellowish-brown, brownish gray at the bottom of the interval
979	985	6	Sandstone (fine) to siltstone, light olive gray to greenish-gray, slightly to moderately calcareous, highly micaceous and chloritic, partly sideritic (siderite spherulites); large amount of clay cavings, grayish-brown and red, yellowish-brown, light greenish gray, blackish-red; small amount of brownish-gray limestone
985	990	5	Clay, light greenish gray, grayish-red to very dusky red and blackish red, grayish-brown to yellowish-brown, moderately calcareous; small amount of limestone (nodules), light greenish-gray to brownish-gray
990	1005	15	Siltstone and shale, medium-gray to greenish-gray, micaceous, 95%; limestone, partly dolomitic, silty in part, light greenish gray, brownish-gray and brownish-black, 5%
1005	1009	4	Siltstone and clay-shale (silty), medium-gray to greenish-gray, slightly to moderately calcareous, micaceous, 40%; clay-shale, grayish-black to black, carbonaceous, fossiliferous, 40%; clay, grayish-brown to grayish-red, moderate yellowish brown to light olive gray, 20%; small amount of limestone
1009	1017	8	Shale, grayish-black to black, highly carbonaceous, highly fossiliferous, and coal, 60%; siltstone and shale, medium-gray to greenish-gray, micaceous, 20%; clay, grayish-brown and grayish-red, moderate yellowish brown to light olive gray, 20%; small amount of limestone
1017	1023	6	Shale, grayish-black to black; carbonaceous, pyritic in part, highly fossiliferous, 60%; small amount of coal; siltstone and shale, medium-gray to greenish-gray, micaceous, moderately calcareous and dolomitic, 20%; clay, grayish-brown to grayish-red, medium light gray to light olive gray to moderate yellowish brown, 20%; small amount of limestone
1023	1032	9	Clay, edmium light to medium dark gray to olive-gray, slightly calcareous, highly sideritic in part, partly silty and micaceous; clay (small amount), grayish-black to black, grayish-brown to grayish-red, moderate yellowish brown; small amount of light greenish gray to greenish-gray, silty limestone and limy siltstone; trace of coal
1032	1035	3	Sandy clay to argillaceous sandstone, fine- to medium-grained, yellowish-gray to light olive gray, micaceous, sideritic in part
1035	1043	8	Sandstone, yellowish-gray to light olive gray, fine- to medium-grained at the top, mostly fine-grained toward the bottom, argillaceous cementing material at top to calcareous cement at the bottom, highly micaceous, chloritic, angular to subangular at the top to angular at the bottom
1043	1060	17	Sandstone, yellowish-gray, fine- to medium-grained, angular to subangular, highly micaceous, chloritic, moderately calcareous at top, slightly calcareous at bottom; most of the sand grains are frosted
1060	1088	28	Sandstone, white to yellowish-gray, medium- to coarse-grained, angular to subangular, chloritic, slightly micaceous, most of the sand grains are frosted, many of the quartz grains are partly clear and glassy showing secondary crystal facets; good porosity

(CONTINUED: OVER) PAGE 6).

Top.	Bottom.	Thickness.	
1088	- 1108	20	Sandstone, yellowish-gray to very light gray, medium-grained, occasional coarse grains, much of the quartz is clear and glassy showing an occasional crystal facet, angular to subangular, chloritic, slightly calcareous; small amount of grayish-brown to brownish-gray siderite
1108	- 1120	12	Sandstone, (very fine grained) to coarse siltstone, very light gray to yellowish-gray, micaceous, slightly chloritic, 90%; siderite, grayish-brown to brownish-gray, partly silty, 10%
ALLEGHENY FORMATION, 234 FEET			
1120	- 1125	5	Siltstone and shale, medium light to medium dark gray, 75%; shale, black, highly carbonaceous with streaks of coal (Upper Freeport Coal?), 5%; shale, light to dark brownish gray, 20%
1125	- 1131	6	Siltstone and shale, medium-gray to greenish-gray, highly micaceous, 60%; limestone, light brownish gray, silty, 20%; shale, medium light gray to light brownish gray, highly sideritic, 20%
1131	- 1140	9	Siltstone, medium-gray to dark greenish gray, very slightly calcareous, highly micaceous
1140	- 1150	10	Siltstone and shale, medium-gray to dark greenish gray, highly micaceous, slightly calcareous; small amount of medium-brown to grayish-brown, sideritic limestone
1150	- 1157	7	Shale, medium to medium dark gray, 80%; sandstone (fine-grained) to siltstone, medium light gray to light olive gray, highly micaceous, moderately calcareous, 20%; small amount of medium-brown to grayish-brown, sideritic limestone; trace of light-gray, sideritic shale (cavings?)
1157	- 1171	14	Clay, medium light gray to light olive gray, silty, moderately calcareous, 30%; shale at top, medium light gray to grayish-black, partly carbonaceous, 20%; limestone, olive-gray to dark and dusky yellowish brown, highly sideritic, 50%; (siderite part is yellowish-brown)
1171	- 1177	6	Siltstone and shale, medium-gray to greenish-gray, micaceous, partly sideritic (spherulites), 65%; sandstone, light greenish gray, highly micaceous, chloritic, fine- to medium-grained, 20%; limestone, mottled olive-gray and dark yellowish brown, highly sideritic, 10%; shale, grayish-black to black, carbonaceous, 5%
1177	- 1185	8	Siltstone, shale, medium-gray to light olive gray to greenish-gray, sideritic in part, partly micaceous, 70%; clay, light olive gray to olive-gray to black, carbonaceous, 30%; trace of black highly carbonaceous shale that is almost a coal
1185	- 1208	23	Sandstone, yellowish-gray to light olive gray, fine-grained, angular, well cemented, slightly calcareous, highly micaceous, moderately to highly sideritic, chloritic
1208	- 1218	10	Siltstone and shale, medium-gray to light olive gray, micaceous, slightly to moderately sideritic; siltstone, dark-gray to grayish-black, micaceous, carbonaceous, slightly to moderately sideritic, pyritic in part; trace of moderate dark yellowish brown, silty, calcareous siderite
1218	- 1225	7	Siltstone, medium- to dark-gray to olive-gray, slightly to moderately carbonaceous, olive-gray is sideritic, 80%; trace of moderate to dark yellowish brown, sideritic shale and siltstone; shale, grayish-black to black, highly carbonaceous, 20%

(CONTINUED ON PAGE 7)



Top.	Bottom.	Thickness.	
1225	- 1232	7	Siltstone and shale, medium-gray to light olive gray to greenish-gray, medium dark gray to black (highly carbonaceous), partly micaceous; trace of coal; small amount of moderate to dark yellowish brown, sideritic shale
1232	- 1241	9	Clay, light olive gray, silty and sandy, 60%; sandstone, yellowish-gray to light olive gray, fine-grained, angular to subangular, partly argillaceous, micaceous, 40%
1241	- 1280	39	Sandstone, yellowish-gray to light olive gray, fine-grained, 1241-1260', medium-grained, 1260-1277', angular to subangular, moderately micaceous, most of the sand grains are quartz and are frosted, slightly calcareous, 1260-1267', a few of the grains show crystal faces
1280	- 1285	5	Siltstone, medium-gray to dark-gray, heavily dotted with dark yellowish brown spots of siderite and black specks, with occasional black streak of carbonaceous matter
1285	- 1294	9	Clay, light olive gray, with occasional carbonaceous streak, some olive-gray fragments; with considerable interbedded sandstone (fine-grained) and siltstone, very light gray to grayish-black, micaceous, and sideritic; small amount of dark to dusky yellowish brown, sideritic shale; trace of pyrite
1294	- 1311	17	Shale and siltstone, medium light to medium dark gray, some light olive gray, with interbedded light olive gray to olive gray, partly sideritic (spherulites) clay; at the bottom a very fine to fine-grained, light olive gray, highly micaceous, moderately sideritic sandstone
1311	- 1326	15	Siltstone and shale, medium light gray to grayish-black, micaceous, sideritic, carbonaceous; considerable interbedded silty, light olive gray clay containing many siderite spherulites
1326	- 1336	10	Sandstone, yellowish-gray to light olive gray, very fine grained, partly argillaceous, micaceous, highly sideritic in part
1336	- 1344	8	Siltstone and shale, medium to medium dark gray, micaceous, carbonaceous, and moderately to highly sideritic
1344	- 1354	10	Siltstone and shale, medium- to dark-gray, micaceous; some grayish-black to black, highly carbonaceous shale, with a little coal (Lower Kittanning Coal?)
POTTSVILLE FORMATION, <del>401</del> 401 FEET.			
1354	- 1385	31	Siltstone and shale, medium- to dark-gray, micaceous; some interbedded grayish-black to black, highly carbonaceous shale, with a little coal at the top; near the bottom, a moderate amount of interbedded, light olive gray, fine to very fine sandstone, with some mica, clay, and carbonaceous material
1385	- 1392	7	Sandstone, yellowish-gray to light olive gray, fine-grained, micaceous, partly carbonaceous, moderately sideritic; some interbedded, medium- to dark-gray, micaceous, moderately sideritic, somewhat carbonaceous siltstone and shale
1392	- 1435	43	Sandstone, light-gray to yellowish-gray, the quartz is fine-grained, with considerable amount of medium grains at the bottom, angular to subangular, highly micaceous and carbonaceous streaks, sideritic, argillaceous; contains some chlorite
1435	- 1460	25	Shale and siltstone, medium light to medium dark gray, micaceous, occasional carbonaceous streak toward the bottom; small amount of dark yellowish brown sideritic siltstone and shale; trace of black, highly carbonaceous shale

Top. Bottom. Thickness.

1460 - 1498	38	Siltstone and shale, medium light to dark-gray, a few carbonaceous streaks; interbedded grayish-black to black, highly carbonaceous shale; toward the middle and lower part, considerable interbedded, light olive gray, argillaceous, moderately micaceous siltstone
1498 - 1514	16	Siltstone and shale, medium- to dark-gray, with occasional carbonaceous streak, light olive gray (argillaceous), micaceous; some interbedded brownish- to grayish-black to black, highly carbonaceous shale; trace of dark yellowish brown, sideritic shale
1514 - 1534	20	Sandstone, light olive gray, fine-grained, subangular, mostly quartz grains, moderately calcareous, partly sideritic, contains mica and chlorite in moderate amount, some interbedded light olive gray to medium-gray, silty clay; scattered fragments of medium to dark brownish gray siderite
1534 - 1541	7	Siltstone, light olive gray, coarse, micaceous, argillaceous, occasional carbonaceous streak; interbedded medium-gray to grayish-black, somewhat carbonaceous siltstone and black, carbonaceous shale; small amount of dusky yellowish brown siderite
1541 - 1560	19	Siltstone to fine sandstone at bottom, light olive gray to olive-gray, medium to medium dark gray, abundant carbonaceous streaks, highly micaceous, slightly calcareous, and moderately sideritic
1560 - 1578	18	Siltstone and shale, medium light gray to grayish-black, micaceous, somewhat carbonaceous, with a small amount of dark dusky yellowish brown, sideritic shale and siderite; trace of black, carbonaceous shale; trace of brownish-gray limestone at bottom
1578 - 1608	30	Shaly siltstone and silty shale, dark-gray to grayish-black, sandy; considerable interbedded light- to medium-gray, very fine to fine-grained sandstone; some interbedded dark yellowish brown, sandy, sideritic shale
1608 - 1638	30	Sandstone, very light gray to yellowish-gray, very fine to fine-grained, subangular to subrounded, considerable interbedded thin grayish-black to black, highly carbonaceous in part, micaceous shale; contains some dark yellowish brown, sandy, highly sideritic shale
1638 - 1646	8	Sandstone, very light gray to yellowish-gray, subangular to subrounded, contains some mica, and some carbonaceous material, interbedded dark-gray to grayish-black, somewhat carbonaceous, silty, soft shale; trace of dark-brown sideritic shale
1646 - 1704	58	Sandstone, very light gray to yellowish-gray, medium- to coarse-grained, mostly quartz, subangular to subrounded, many of the larger grains are rounded and frosted, a large percentage of the quartz grains show secondary crystal facets, some medium gray to grayish-black clay-shale near the top and bottom, the sandstone shows good porosity where the secondary crystal facets are less developed
1704 - 1708	4	No sample
1708 - 1726	18	Sandstone, yellowish-gray, fine- to coarse-grained at top, very fine to fine-grained at the bottom, subangular to subrounded, argillaceous, very slightly micaceous (muscovite), stained brown by iron (probably from drilling tools), slightly shaly, almost entirely quartz, many of the quartz grains have secondary crystal facets, many of the large grains are rounded and frosted

(CONTINUED ON PAGE 9)

Top. Bottom. Thickness.

1726 - 1747	21	Sandstone, yellowish-gray to light-gray to greenish-gray, fine-grained, angular to subangular, a large percentage of the quartz grains have secondary crystal facets, very slightly calcereous, somewhat shaly, slightly micaceous and chloritic
1747 - 1755	8	Sandstone, light-gray to greenish-gray, fine-grained, angular to subangular, somewhat micaceous and chloritic; sandstone, yellowish-gray to very light gray, medium- to coarse-grained, angular to subrounded, mostly quartz POCONO FORMATION, 483 FEET
1755 - 1853	98	Sandstone, yellowish-gray to white, fine- to medium-grained except at top and middle (medium to coarse) and at bottom (medium to very coarse), angular to subrounded, quartzose, many of the large quartz grains are rounded and frosted in upper and middle part but are angular and glassy in lower part of interval, a large percentage of the quartz grains show secondary crystal facets, the porosity is less where the secondary growths are most prominent, somewhat argillaceous, 1764-1796'
1853 - 1856	3	Sandstone, white to light-gray, medium- to coarse-grained at the top to very fine grained at the bottom, subangular, many of the quartz grains show secondary crystal facets; some interbedded, dark-gray shale and dark yellowish brown, sideritic shale
1856 - 1865	9	Sandstone (very fine) to siltstone, very light to medium-gray, slightly micaceous and carbonaceous; considerable interbedded medium to medium dark gray, silty, slightly carbonaceous shale
1865 - 1890	25	Sandstone (very fine) to coarse siltstone, light-gray to light olive gray, somewhat micaceous, slightly carbonaceous; considerable interbedded medium-gray, sandy, micaceous, somewhat carbonaceous siltstone; a small amount of moderate to dark yellowish brown, sideritic, sandy siltstone; trace of black carbonaceous shale
1890 - 2023	133	Shale, medium-gray to dark-gray, very slightly carbonaceous, somewhat micaceous, silty, soft in part; interbedded light- to medium-gray to light olive gray siltstone, with some very fine sandstone, somewhat micaceous, slightly carbonaceous, kaolin <sup>o</sup> itic, slightly calcareous in part, the light olive gray siltstone is slightly sideritic; contains some moderate to dark yellowish brown, sideritic, silty shale; some olive gray to dark greenish gray siltstone near bottom
2023 - 2040	17	Limestone, very silty and sandy (clastic texture) to highly calcareous, sandy siltstone, light greenish gray and light olive gray, medium-gray and greenish-gray, kaolinitic and micaceous toward the top, with interbedded medium- to dark-gray to greenish-gray, silty, somewhat micaceous and slightly carbonaceous shale at bottom
2040 - 2189	149	Shale, medium- to dark-gray to dark greenish gray, silty, moderately micaceous in part, very slightly carbonaceous, with interbedded light- to medium-gray, greenish-gray, to dark greenish gray, micaceous kaolinitic, slightly carbonaceous (in part) siltstone, moderately calcareous in part, the brownish-gray is slightly sideritic; some dark yellowish brown, silty and shale siderite
2189 - 2225	36	Shale, medium light gray to dark-gray, brownish-gray to brownish-black, partly pyritic, somewhat micaceous, slightly carbonaceous (Sunbury Shale)

(CONTINUED; OVER: PAGE 10)

Top.	Bottom.	Thickness.	
2225	- 2238	13	Sandstone, light olive gray, fine to very fine grained, partly pyritic, kaolinitic, slightly to highly calcareous (Berea Sandstone); interbedded brownish-gray to brownish-black, somewhat carbonaceous shale (cavings?); some medium- to dark-gray silty shale
DEVONIAN SHALES, 2462 FEET			
2238	- 2402	164	Siltstone and shale, medium and medium-dark gray to greenish-gray and dark greenish gray, somewhat micaceous, very slightly carbonaceous, dolomitic and slightly calcareous in part; some brownish-gray to brownish-black shale at top; shale and siltstone toward the bottom
2402	- 2505	103	Siltstone and shale, light- to medium-gray, light and dark greenish gray, light olive gray to olive-gray, somewhat micaceous, very slightly carbonaceous, kaolinitic (particularly the siltstone), slightly calcareous and dolomitic; small amount of brownish-black shale
2505	- 2540	35	Siltstone and shale, greenish-gray to light olive gray, brownish-gray and dark brownish gray, slightly calcareous, partly micaceous, partly kaolinitic, very slightly carbonaceous; trace of brownish-black and black shale; light-gray to light olive gray, micaceous, kaolinitic, coarse siltstone interbedded at the bottom
2540	- 2547	7	Siltstone, light-gray to light olive gray, somewhat micaceous and kaolinitic, moderately calcareous and dolomitic; interbedded olive-gray to greenish-gray and medium-gray, micaceous and kaolinitic siltstone and shale
2547	- 2559	12	Siltstone, light-gray to olive-gray, highly calcareous, somewhat micaceous and kaolinitic; a large amount of interbedded, olive-gray to greenish- and brownish-gray to medium-gray, somewhat micaceous and kaolinitic siltstone and shale
2559	- 2959	400	Siltstone and shale, light- to medium-gray to light olive gray and greenish-gray, micaceous and kaolinitic, calcareous and slightly dolomitic in part; small amount of brownish-gray to brownish-black shale; trace of limestone (fossil fragments), 2640-2663'; slightly dolomitic in part, 2831-2867'; slightly to moderately calcareous in part, 2559-2758'; very slightly calcareous and dolomitic at the bottom; trace of dark yellowish brown sideritic shale
2959	- 3402	443	Siltstone and shale, brownish-gray and some greenish-gray at top, followed by brownish-gray, brownish-black, light olive gray, greenish-gray, and medium-gray, micaceous, kaolinitic, a <del>few</del> few scattered pyrite oolites, slightly fossiliferous, 3274-3294', very small, disclike, brown (plant spores?), very slightly to slightly calcareous, slightly dolomitic in part
3402	- 3418	16	Shale, brownish-gray to brownish-black, silty, moderately carbonaceous, considerable interbedded light olive gray to medium-gray to greenish-gray, shale and siltstone, moderately calcareous in part, micaceous, somewhat kaolinitic
3418	- 3938	520	Shale, medium-gray to greenish-gray, light olive gray to brownish-gray, and brownish-black, silty, micaceous; interbedded medium- to light-gray, light olive gray to greenish-gray, light-brown to brownish-gray, micaceous, somewhat kaolinitic, partly calcareous siltstone; trace of pyrite at top, disseminated pyrite and pyrite oolites scattered throughout the interval, very slightly fossiliferous (plant spores?), 3591-3604', 3625-3532'; 3665-3738', 3748-3841', slightly to moderately fossiliferous; 3841-3938', moderate to highly fossiliferous;

(CONTINUED ON PAGE 11)

Top. Bottom. Thickness.

Top.	Bottom.	Thickness.	
			increase in brownish-black shale; small amount of slightly to moderately calcareous and dolomitic siltstone
3938	4019	81	Siltstone and shale, light olive gray and olive-gray to brownish-gray and brownish-black, an increase of brownish-black shale toward the bottom, micaceous and kaolinitic in part, moderately to highly fossiliferous (plant spores?), 3938-3993'; small amount of slightly to moderately calcareous siltstone and shale
4019	4072	53	Siltstone and shale, medium-gray to brownish-gray, light olive gray to greenish-gray, somewhat micaceous and kaolinitic in part; small amount of slightly to moderately calcareous and slightly dolomitic siltstone, some interbedded brownish-black, somewhat carbonaceous shale, slightly fossiliferous
4072	4260	188	Shale with some siltstone, medium-gray to greenish-gray and light olive gray, brown, at top and in middle, very slightly calcareous and slightly dolomitic; at the bottom, slightly calcareous and moderately dolomitic, somewhat fossiliferous 4148-4173' and 4220'; some dark brownish gray to brownish-black shale
4260	4437	177	Shale, medium-gray to greenish-gray, light olive gray to brownish-gray and brownish-black, silty in part; small amount of pyritic shale; small amount of slightly to moderately calcareous and moderately dolomitic shale
4437	4514	77	Shale, light olive gray to olive-gray, brownish-gray to brownish-black and black, some medium-gray to greenish-gray; black is highly carbonaceous, slightly pyritic (disseminated through shale and a few concretions); small amount of limestone
4514	4623	109	Shale, brownish-gray to black, with some medium-gray, light olive gray and greenish-gray; the black shale is highly carbonaceous; small amount of limestone; a small amount of pyrite (disseminated as concretions)
4623	4650	27	Shale, brownish-black to black, highly carbonaceous; considerable interbedded light brownish gray to brownish-gray and some medium-gray to greenish-gray; a few pyrite fragments; moderate amount of moderately to highly calcareous shale
4650	4689	39	Shale, brownish and grayish-black to black, highly carbonaceous, small amount of shale is pyritic, slightly to moderately dolomitic, small amount is calcareous
4689	4700	11	Shale, black, very highly carbonaceous, some brownish- and grayish-black, carbonaceous shale, pyritic in part, 60%; limestone, brownish-gray to brownish-black, very fine grained, crystalline texture, 40%
HUNTERSVILLE CHERT, 140 FEET			
4700	4714	14	Limestone, light to dark brownish gray, moderately dolomitic, crystalline, very fine grained, slightly cherty, very shale, micaceous in part (biotite), slightly glauconitic; some brownish-black to black, carbonaceous shale; small amount of medium-gray to greenish-gray shale
4714	4760	46	Very cherty limestone, white to light brownish gray, slightly shaly, slightly dolomitic (dolomitic rhombs in chert), slightly sandy to a limy sandstone at bottom, pinkish-gray to light brownish gray, fine- to medium-grained, with some coarse chert grains, most of the sand grains are chert, moderate amount of quartz grains, some are shale
4760	4785	25	No samples

(CONTINUED: OVER) (Page 12)

Top. Bottom. Thickness.

4785 -	4800	15	Chert, white to medium-gray and brownish-gray, highly calcareous, moderately dolomitic, a large amount of fine-grained quartz sand and silt, shaly, a large amount of iron rust staining much of the sample
4800 -	4822	22	Limestone, very pale orange to pale yellowish brown and brownish-gray, the brownish-gray increases toward bottom, highly dolomitic, cherty, and sandy, much of the chert has included rhombs of dolomite, clastic texture, slightly glauconitic, slightly shaly
4822 -	4840	18	Clacareous chert, somewhat sandy at top to a cherty, arenaceous limestone toward the center, to a cherty limestone at the bottom, brownish-gray with some pale yellowish brown at the top, brownish-gray to medium-gray in the middle, and at the bottom, pale yellowish brown to yellowish- and brownish-gray, moderately to highly dolomitic; much dolomite is included in the chert grains, somewhat glauconitic at top and middle; a large amount of rust and steel chips, slightly shaly CRISKANY SANDSTONE, 40 FEET
4840 -	4845	5	Sandstone, white to very light gray and medium- to coarse-grained, subrounded to rounded, moderately calcareous, hard, but has good porosity, quartzose
4845 -	4850	5	Sandstone, very light gray, fine- to medium-grained, with some coarse grains, quartzose, hard, subrounded to rounded, good porosity, moderately calcareous, somewhat cherty (cavings?), many of had quartz grains show secondary crystal facets
4850 -	4856	6	Sandstone, very light gray, fine-grained, some medium and a few coarse grains, quartzose, many of the grains show secondary crystal facets, subangular to subrounded, the coarse grains are rounded and frosted, moderately calcareous, stained brown by iron oxide (from tools)
4856 -	4870	14	Sandstone, light-gray, with some dark-gray toward the bottom, very fine to fine-grained, with some rounded medium grains near the bottom, subangular to subrounded, moderately to highly calcareous, somewhat shaly toward the bottom
4870 -	4876	6	Sandstone, light-gray, with occasional dark-gray streaks, fine-grained, subangular to subrounded, some of the quartz <del>medium</del> grains some secondary crystal facets, the dark streaks are shaly, moderately calcareous
4876 -	4880	4	Sandstone, light- to medium-gray, fine-grained, subangular to subrounded, highly calcareous; considerable interbedded, dark-gray, sandy, moderately calcareous shale HELDERBERG LIMESTONE, 27+ FEET
4880 -	4887	7	Limestone, very pale orange to pale yellowish brown, some grayish-brown, clastic texture, very sandy (fine-grained), slightly dolomitic
4887 -	4894	7	Limestone, brownish-gray to brownish-black, with some medium- to light-gray, slightly glauconitic, very sandy, fine-grained, with some medium and coarse (rounded) grains, very shaly in part
4894 -	4907	13	Limestone, pale yellowish brown to brownish-gray and medium dark gray (fine-grained to silt), somewhat shaly, somewhat dolomitic, slightly glauconitic
4907			Total depth