

Latitude

39 07 30

79 22 00

Longitude

→ 0625  
7.5' loc  
wa 7/16/1927  
1.885  
0.67W

Topo Location

7.5' Loc. \_\_\_\_\_ 15' Loc. 4.765  
\_\_\_\_\_ (calc.) 2.90W

Company \_\_\_\_\_

Farm \_\_\_\_\_

15' Quad Davis C  
(sec.) \_\_\_\_\_

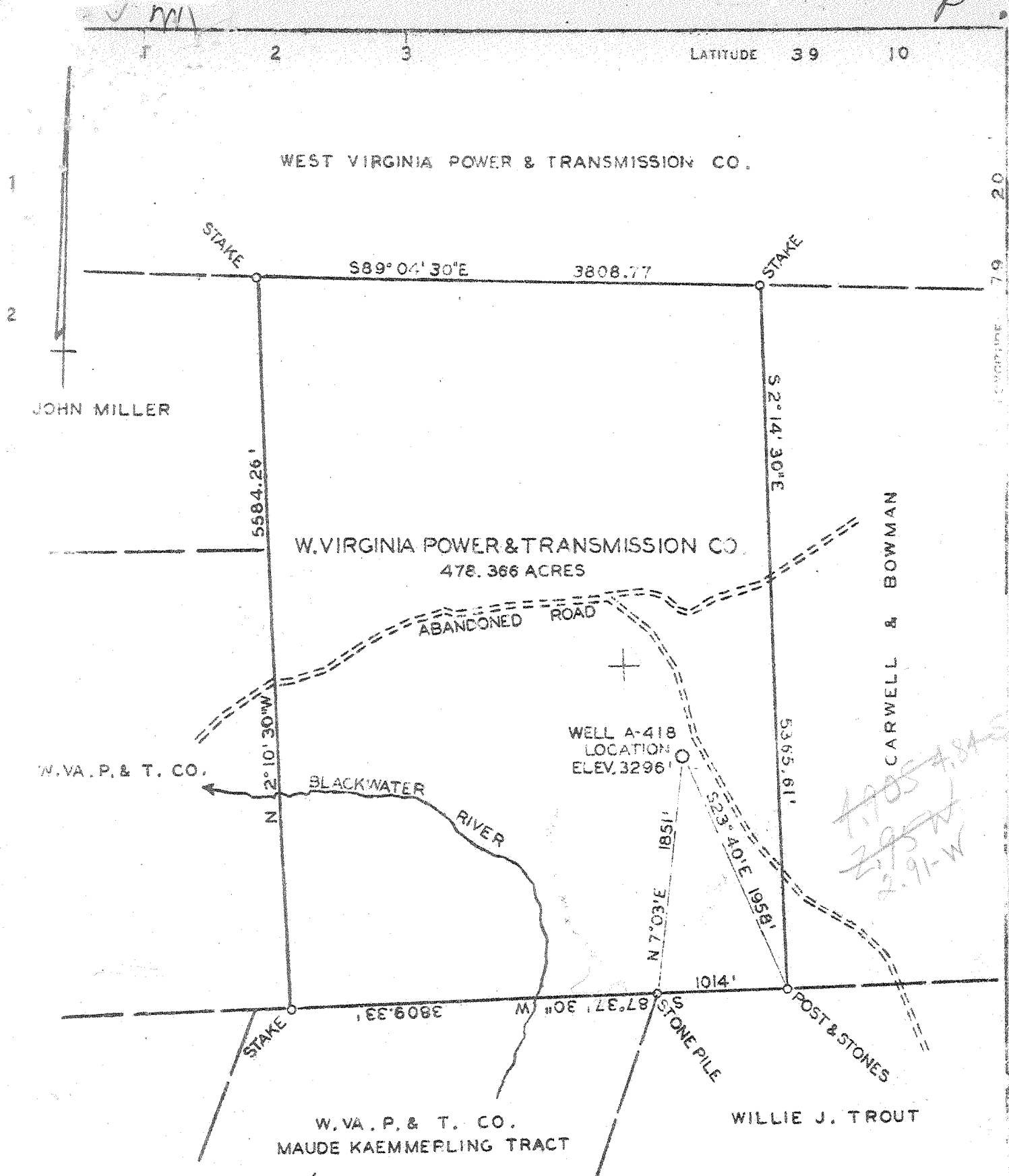
7.5' Quad Blackwater Falls  
\_\_\_\_\_

District \_\_\_\_\_

WELL LOCATION PLAT

County 093 Permit 3

DEEP WELL



COAL OWNED BY *No coal under this tract*

NEW LOCATION    
 DRILL DEEPER    
 ABANDONMENT

COMPANY CUMBERLAND & ALLEGHENY GAS CO.  
 ADDRESS 800 UNION TRUST BLDG. PITTSBURGH, PA.  
 FARM W. VA. POWER & TRANSMISSION CO.  
 TRACT \_\_\_\_\_ ACRES 478.366 LEASE NO. 6964  
 WELL (FARM) NO. 1 SERIAL NO. A-418  
 ELEVATION (SPIRIT LEVEL) 3296'  
 QUADRANG: DAVIS - C Blackwater Falls  
 COUNTY TUCKER DISTRICT DAVIS  
 ENGINEER A. J. Russell  
 ENGINEER'S REGISTRATION NO. \_\_\_\_\_  
 FILE NO. \_\_\_\_\_ DRAWING NO. Y-13-11  
 DATE JAN. 15, 1948 SCALE 1" = 1000'

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

**WELL LOCATION MAP**  
 FILE NO. Juc-3

+ DENOTES LOCATION OF WELL ON UNITED STATES TOPO-  
 GRAPHIC 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.

*6-6 287*  
**DEEP WELL**

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

Gas Well  
CASING & TUBING

Permit No. Tuc 3					
Davis Quad.					
Company	Cumberland & Allegheny Gas Co.				
Address		Cond. 14	21" 11	Same	
Farm	W. Va. Power and Trans, Co. A 478	10	1052'	5	"
District	Davis Tucker County	7	7994'	8	"
Commenced	May 5, 1948	2	8166'	11	"
Completed	Jan. 11, 1949				
Well No.	418				
Water	95' H.F.; 1363 7 blrs. in 3 hrs.				No Packer
Volume	5.8 W 3" 537,249 Oriskany 12-19-48				
	4.0 W 3" 446,220 " 5-12-49				
Rock Pressure	2500# 48 hrs.				
	2280# 72 hrs.				

Clay	0	3	Dark Slate	7200	7692
Sand, Slate	3	87	Lime	7692	7708
Lime	87	125	Black Shale	7708	7803
Red Rock, Lime, Shells	125	290	Lime	7803	7825
Slate	290	305	Black Slate & Shells	7825	7891
Lime, R.R.	305	420	Lime, Slate & Shells	7891	7959
Gritty Lime, Sand, R.R.	420	652	Chert Sand	7959	7984
Shell & R.R.	652	661	Dark Slate & Sand Shells	7984	7994
Gritty Lime	661	772	Dark Slate	7994	8029
Sand	772	811	Chert Sand	8029	8056
R.R. & Shells	811	897	Sand Oriskany	8056	8149
Lime, Red Sand, Light Sand	897	1065	<del>Lime</del>	8149	8175
Red Rock	1065	1072	Total depth		8175
R.R., Red Sand, Lime	1072	1255	Depth from ground level to bottom	8168	(475)
Slate & Shells	1255	1268			
Gritty Lime	1268	1327	Gas at 1345 20/10 W 1" → 278 1/2		
R. Rock	1327	1333	Gas at 1345 blew down to 10/10 W 3/8"		
Sand	1333	1347	Reduced hole 3987		
R.R. Lime	1347	1373	Show of gas 8056 top of sand 1.8 W 2"		
Sand, Slate	1373	1383	133,060		
Gritty Lime	1383	1400	Gas 8112-8117 5.8 W 3" 537,249		
R. Sand, Slate & Shells	1400	1488	Final test after tubed 4.0 W 3" 446,220		
Lime	1488	1505	Show of gas 7862 (blew out)		
R. Rock & Lime, shells	1505	1562	1 and 2nd joints of tubing perforated 55'		
Slate & Shells	1562	1587	1/8" hole in 2" tubing at 7028		
Lime	1587	1609	1/16" hole in 2" tubing at 6594		
Sand	1609	1636	Used 263 joints of 2" tubing		
Gritty Lime	1636	1646			
Slate & Shells, Sand	1646	1880	MINUTE PICK UP		
Red Rock	1880	1905	1 2 3 4 5 6 7 8 9		
Lime	1905	1928	20 29 36 38 42 46 48 50 52		
Red Rock & Shells	1928	1957			
Lime Light	1957	1972	10 11 12 13 14 15 16 17 18		
Red Rock	1972	1981	54 58 62 66 70 74 78 82 86		
Lime, Slate & Shells	1981	2242			
Sand	2242	2250	19 20 30 60		
Slate, Lime, Shells	2250	2330	90 94 122 212		
Gritty Lime	2330	2448			
Slate, Shells, Lime	2448	2720	Oriskany Sand acidized Jan. 20, 1949		
Gritty Lime	2720	2726			
Slate & Shells	2726	2815			
Lime	2815	2824	4AVL - 7960-7983		
Sand	2824	2832	NBMR - 7983-8056		
Slate & Shells, Lime	2832	3040	ORSK - 8056-		
Lime, Slate & Shells	3040	3150			
Slate	3150	3155			
Lime, Slate & Shells	3155	3533			
Sand	3533	3555			
Slate & Shells, Lime	3555	3798			
Sand	3798	3825			
Slate & Shells, Lime	3825	4221			
Sand & Shells	4221	4244			
Slate & Shells, Lime	4244	6546			
Gritty Lime	6546	6653			
Slate & Shells, Lime	6653	7200			

8056  
3296  

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-4760

8107  
7630  
37

7896  
7420  
753

P

*W. Va. P. & T. Co.*

District, Tucker County, W. Va.

By Cumberland & Allegheny Gas Co., 800 Union Trust Bldg., Pittsburgh, Pa.

On 478.366 acres; lease No. 6964.

Elevation, 3296' L.

Engr., A. J. Russell.

Drawing No. Y-13-11.

Plat dated Jan. 15, 1948. Scale: 1" = 1000'.

PERMIT TUC-3.

Plat from Smith Feb. 29, 1948.

Located 4.9 mi. S. of 39° 10' and 2.95 mi. W. of 79° 20' - C -

Davis Quadrangle.

On NE + side of Blackwater River.

Adjoining property owners:

N - W. Va. Power & Transmission Co.

E - Carwell & Bowman.

S - Willie J. Trout, W. Va. P. & T. Co. (Maude Kaemmerling tract).

W - W. Va. P. & T. Co., John Miller.

*(Handwritten signature/initials)*

Dry Fork District, Tucker County, W. Va.

By Cumberland & Allegheny Gas Co., 800 Union Trust Bldg., Pittsburgh, Pa.

Located 4.9 mi. S. of 38° 10' and 2.95 mi. W. of 79° 20' - C - Davis Quadrangle.

Elevation, 3295' L.

Permit Tucker-3.

Drilling commenced May 1948; completed January 22, 1949.

Gas well; volume, 537,000 cu. ft.

No coal was encountered.

Section based on samples from 160 to 8201', examined by Russell R. Flowers.

Record to RCT from Flowers Aug. 15, 1949.

Top.	Bottom.	Thickness.	HAMPSHIRE FORMATION, 2117 FEET
160	- 185	15	Clay-shale, very dusky red to grayish-brown and dusky-brown, silty to argillaceous siltstone, (somewhat sandy) at the top, somewhat dolomitic in the middle part; some interbedded siltstone and shale, greenish-gray, some medium-gray, sandy in part; some sandstone (very fine) to siltstone, greenish-gray and light-gray to grayish-red at the top
185	- 267	82	Shale (soft) and siltstone (micaceous), very dusky red to dusky-brown, some grayish-brown, sandy in part; some interbedded, greenish-gray to grayish-red siltstone and shale, dolomitic in part, a moderate amount at the bottom
267	- 290	23	Shale and siltstone, grayish-red and very dusky red to grayish-brown and dusky-brown, some blackish-red, some brownish-gray, very sandy in part; a moderate amount of interbedded, medium light to medium dark gray siltstone and shale, but a large amount at the top; some greenish-gray to brownish-gray, very silty, micaceous sandstone in the lower part; small amount is dolomitic
290	- 298	8	Sandstone (very silty) to siltstone (very sandy) and shale, greenish-gray to medium-gray (with black and carbonaceous "coaly" streaks), kaolinitic, micaceous, somewhat sideritic in part; small amount of grayish-brown to very dusky red shale; trace of pyrite
298	- 304	6	Siltstone and shale, greenish-gray to medium-gray, pyritic in part, sandy in part, 50%; shale with some siltstone, grayish-red and very dusky red to grayish-brown and dusky-brown, dolomitic in part, 50%
304	- 319	15	Siltstone and shale, medium to medium dark gray to dark greenish gray (chloritic toward the bottom), somewhat micaceous and kaolinitic, slightly to moderately sideritic; small amount of light-gray sandstone with yellowish-brown spots; some grayish-brown to grayish-red and very dusky red shale in the upper part; some brownish-gray, sandy micaceous siltstone in the bottom part
319	- 356	37	Sandstone, greenish-gray to dark greenish gray, greenish-gray to brownish-gray at the top and bottom, very fine grained, some fine grains and some silt, highly chloritic and kaolinitic, micaceous, also contains shale fragments and some carbonaceous material
356	- 365	9	Sandstone, brownish-gray to dusky-brown, very fine grained, chloritic and micaceous
365	- 381	16	Sandstone, brownish-gray to greenish-gray, mostly greenish-gray in the lower part, very fine grained, chloritic, micaceous and kaolinitic; some grayish-red to grayish-brown shale and greenish-gray shale in the middle and lower parts

Top.	Bottom.	Thickness.	
381	- 384	3	Sandstone, light-gray to greenish-gray, fine-grained, somewhat dolomitic; some carbonaceous streaks
384	- 400	16	Sandstone, greenish-gray to medium-gray, very fine to fine-grained, highly dolomitic to dolomite, 60% at top to 40% at bottom; shale, grayish-red to very dusky red to grayish-brown, 40% at top to 60% at bottom; trace of black, carbonaceous shale
400	- 416	16	Shale, grayish-brown to very dusky red; some greenish-gray to medium-gray, dolomitic sandstone and dolomite at the top
416	- 438	22	Shale and siltstone, dusky-brown to very dusky red, some grayish-brown, very sandy and micaceous in the lower part; some greenish-gray to medium-gray, dolomitic sandstone and dolomite at the bottom
438	- 493	55	Sandstone, very light gray to greenish-gray in the upper part to very light gray and light greenish gray in the lower part, very fine to fine-grained, chloritic and micaceous, somewhat kaolinitic, somewhat dolomitic (cement); a large amount of dusky-brown to brownish-gray, sandy siltstone and shale in the upper part
493	- 501	8	Sandstone, light- to medium-gray to greenish-gray (with some black, carbonaceous spots and streaks), fine-grained, dolomitic in part, highly chloritic, micaceous and kaolinitic
501	- 508	7	Sandstone, light- to medium-gray to greenish-gray, fine-grained, 60%; shale and siltstone, grayish-brown to very dusky red, medium-gray to greenish-gray, 30%; sandstone, grayish-brown to brownish-gray, very fine to fine-grained, 10%
508	- 524	16	Sandstone, grayish-brown to brownish-gray, greenish-gray to medium-gray, fine-grained, some very fine grains, small part is dolomitic, chloritic, micaceous and kaolinitic; mostly grayish-brown to brownish-gray, greenish-gray to medium-gray shale at the top
524	- 546	22	Sandstone, greenish-gray to medium light gray, small amount of grayish-brown to brownish-gray but a moderate amount at the bottom, fine to very fine grained, highly chloritic, micaceous, somewhat kaolinitic and carbonaceous, slightly dolomitic; some interbedded, grayish-brown to brownish-gray and greenish-gray to medium-gray shale
546	- 592	46	Siltstone and shale, grayish-brown and dusky-brown to very dusky red, micaceous and chloritic, small amount is dolomitic, 563-572', a moderate amount of dusky-brown to very dusky red, fine to very fine grained sandstone; a moderate amount of greenish-gray to medium-gray and grayish-brown, fine to very fine grained sandstone at the top
592	- 650	58	Sandstone, brownish-gray to dusky-brown, some greenish-gray and light-gray but a moderate amount at the bottom, very fine to fine-grained, very silty at the top, highly micaceous and chloritic, slightly dolomitic in the lower part and moderately dolomitic at the bottom, contains a large amount of shale grains; some grayish-red to grayish-brown shale
650	- 661	11	Sandstone, light greenish to greenish-gray, fine to very fine grained, highly chloritic, somewhat kaolinitic, moderately dolomitic; small amount of brownish-gray to dusky-brown, fine sandstone
661	- 665	4	Shale (sandy and silty) to sandstone (shaly), very fine to fine), brownish-gray to dusky-brown, some greenish-gray, chloritic, somewhat micaceous; small amount of dolomite, greenish-gray

(Continued on p. 3)

Top.	Bottom.	Thickness.	
665	668	3	Sandstone (fine) to sandstone (silty and shaly) to shale (sandy and silty), light greenish gray to greenish-gray and medium-gray, highly dolomitic in part, highly chloritic, kaolinitic
668	674	6	Sandstone, light greenish to greenish-gray, dusky-brown to brownish-gray, fine to very fine grained, chloritic, somewhat kaolinitic, somewhat dolomitic in part, the brownish-gray is shaly to a sandy shale
674	694	20	Sandstone, light greenish to greenish-gray, fine to very fine grained, mostly fine-grained at the bottom, chloritic, small amount of carbonaceous material in the middle part, slightly dolomitic at the top to moderately dolomitic at the bottom
694	715	21	Sandstone (with very high shale content), to shale (very sandy), brownish-gray to dusky-brown, sand grains are fine to very fine, micaceous, kaolinitic, and chloritic, moderately dolomitic at the top to slightly dolomitic at the bottom
715	721	6	Sandstone, brownish-gray to dusky-brown, with some grayish-brown shale, 60%; sandstone to shale, light greenish to greenish-gray, fine to very fine grained, some medium grains, moderately to highly dolomitic, 40%
721	738	17	Sandstone, light greenish to greenish-gray (with some very light gray and some dark-gray spots), very fine to fine-grained, some medium grains, highly dolomitic, some dolomite, chloritic somewhat kaolinitic and carbonaceous
738	746	8	Sandstone, greenish-gray, very fine to fine-grained, dolomitic, 40%; sandstone, brownish-gray to dusky-brown, very fine, dolomitic in part, shaly to sandy shale and some grayish-brown shale, 60%
746	752	6	Sandstone (with high shale content) to shale (sandy), brownish-gray to dusky-brown, some grayish-brown, micaceous, chloritic, and kaolinitic, moderately dolomitic in part
752	772	20	Sandstone, light greenish to greenish-gray and medium-gray, some brownish-gray to dusky-brown in the lower part, fine to very fine grained, highly chloritic, kaolinitic, some mica and carbonaceous material, moderately dolomitic
772	783	11	Sandstone, greenish-gray, fine to very fine grained, dolomitic, 30%; sandstone (fine to very fine with a high shale content) to shale (very silty and sandy), brownish-gray to grayish-brown, 70%
783	825	42	Siltstone and shale, grayish-brown to dusky-brown, some very dusky red at the bottom, somewhat sandy, with spots and streaks of dolomite; at the top, sandstone, grayish-brown to dusky-brown, very fine grained, high shale content
825	837	12	Shale, grayish-red to very dusky red; some greenish-gray siltstone and shale in the lower part; some brownish-gray to dusky-brown siltstone and shale; trace of dolomite
837	849	12	Shale and siltstone, grayish-brown and dusky-brown to brownish-gray, some grayish-red to very dusky red, micaceous in part
849	860	11	Sandstone (very fine) to siltstone, grayish-brown to dusky-brown, some brownish-gray, some very dusky red, micaceous in part
860	867	7	Sandstone (very shaly) to shale (sandy and silty), grayish-brown to dusky-brown, the sand grains are very fine, very highly micaceous (much of it is biotite); some grayish-red to very dusky red shale
867	885	18	Shale, grayish-red to grayish-brown, at the top, a very large amount of sandstone (shaly and silty) to silty shale, grayish-brown to dusky-brown, highly micaceous

Top. Bottom. Thickness.

885	- 897	12	Sandstone, brownish-gray to dusky-brown, light-gray to greenish-gray, fine to very fine grained; a large amount of interbedded, grayish-red to grayish-brown shale
897	- 909	12	Shale and siltstone, grayish-red to very dusky red to grayish-brown (some spots and streaks of dolomite)
909	- 943	34	Sandstone (silty with high shale content) to shale (very silty), grayish-red to very dusky red to grayish-brown
943	- 957	14	Shale (very silty and sandy) to sandstone (very high shale content), silty, grayish-red, some very dusky red, somewhat micaceous, small amount dolomitic; in the upper part, some very light gray to pinkish-gray, fine sandstone
957	- 982	25	Sandstone (very fine) to siltstone, grayish-red to very dusky red, very high shale content
982	- 997	15	Sandstone, very light gray to light greenish gray, some greenish-gray, fine-grained, some medium-rounded grains, somewhat dolomitic; at the top, sandy siltstone and shale, grayish-red to very dusky red; some sandstone and siltstone, greenish-gray to medium-gray, slightly carbonaceous
997	- 1063	66	Sandstone, light greenish gray to greenish-gray and medium-gray, fine to very fine grained, some rounded medium grains, slightly to moderately dolomitic in part, contains many dark-gray streaks (carbonaceous cement); 997-1019', a very large amount of grayish-red, sandy siltstone and shale (probably mostly cavings); 1051-1060', sandstone (fine, very shaly) to shale (very sandy), grayish-red to grayish-brown
1063	- 1107	44	Sandstone (very fine) to siltstone, grayish-red to very dusky red to grayish-brown, very shaly to very silty and sandy shale highly micaceous in part near the top, small amount <del>mm</del> is dolomitic
1107	- 1141	34	Sandstone, pale-red to light greenish gray, some grayish-red and greenish-gray with streaks of dark-gray (carbonaceous cement), very fine grained, some fine grains, very silty, slightly dolomitic
1141	- 1151	10	Shale, very dusky red to grayish-red, very sandy, silty
1151	- 1159	8	Sandstone, light- to medium-gray to greenish-gray, fine to very fine grained, some medium to coarse grains to pebbles, contains some carbonaceous material; a moderate amount of grayish-red to very dusky red, sandy and silty shale
1159	- 1193	34	Sandstone, light- to dark-gray, some greenish-gray, fine to very fine grained, slightly to moderately carbonaceous, some chloritic material, contains some shale grains; a large amount of interbedded, sandy and silty grayish-red to very dusky red shale at the bottom
1193	- 1204	11	Siltstone and shale, grayish-red to very dusky red, sandy (very fine), somewhat micaceous
1204	- 1214	10	No sample
1214	- 1245	31	Sandstone, grayish-brown to dusky-brown to grayish-red; fine to very fine grained at the top to very fine grained, silty, at the bottom, very shaly to sandy and silty shale, somewhat dolomitic in the middle part, micaceous, highly micaceous at the top
1245	- 1261	16	Sandstone, medium- to dark-gray to greenish-gray, very fine to coarse-grained, slightly dolomitic; a moderate amount of grayish-brown to dusky brown to grayish-red, sandy siltstone and shale
1261	- 1273	12	Sandstone, medium- to dark-gray (carbonaceous) to greenish-gray (chloritic) and shale, medium- to dark-gray, 40%; shale, (very silty and sandy) to sandstone (very fine, very shale and silty)

(Continued on p. 5)



Top. Bottom. Thickness.

Top.	Bottom.	Thickness.	Description
			grayish-brown to dusky-brown to grayish-red, micaceous in part, 60%
1273	1297	24	Shale and siltstone, grayish-brown to dusky-brown, some grayish-red, very sandy (very fine to fine) to sandstone (medium- to dark-gray), some brownish- and greenish-gray at the bottom; small amount is dolomitic; some greenish-gray shale in the middle part
1297	1308	11	No sample
1308	1327	19	Shale and siltstone, grayish-red to very dusky red, some grayish-brown, sandy in part, moderately dolomitic at the top; considerable medium- to dark-gray (carbonaceous cement), sandy siltstone at the bottom
1327	1339	12	Shale, grayish-red to grayish-brown, some very dusky red, medium- to dark-gray, small amount of grayish-black, 70%; sandstone, light- to medium-gray, very fine to siltstone, micaceous in part, slightly pyritic
1339	1345	6	Sandstone, medium light to dark-gray (shaly), very fine to silt; a large amount of dark-gray to grayish-black (carbonaceous) shale, some black (highly carbonaceous), and some grayish-red
1345	1363	18	Shale, grayish-red to very dusky red, medium-gray to grayish-black (carbonaceous), some black (highly carbonaceous), small amount is dolomitic; a large amount of siltstone and shale (silty), medium-gray to greenish-gray, slightly sideritic
1363	1407	44	Sandstone, medium light to dark-gray, very fine grained, silty, somewhat micaceous and carbonaceous; a very large amount of dark-gray to black shale in the middle part and a large amount of medium- to dark-gray shale at the bottom; small amount of siderite but moderate amount at the center
1407	1421	14	Shale and siltstone, grayish-red to very dusky red, some grayish-brown, somewhat micaceous, 90%; sandstone and shale, medium- to dark-gray, 10%
1421	1450	29	Sandstone, medium dark to dark-gray, some medium-gray, moderately carbonaceous, somewhat micaceous; a very large amount of interbedded shale and siltstone, grayish-red to grayish-brown, some greenish-gray to medium-gray, dolomitic in part
1450	1455	5	Sandstone, light- to medium-gray, fine-grained, small amount of chloritic and carbonaceous material; small amount of dolomite
1455	1481	26	Sandstone, light- to medium-gray, fine-grained, some medium grains, contains streaks of medium dark gray, micaceous, kaolinitic siltstone and shale, highly dolomitic to dolomite (particularly at the top)
1481	1505	24	Sandstone, very light gray to light greenish gray, some greenish-gray, fine-grained, fine to very fine grained in the lower part, slightly to moderately dolomitic, some chlorite; considerable interbedded, medium- to dark-gray and some greenish-gray siltstone and shale
1505	1510	5	Sandstone, very light gray to greenish-gray, and siltstone and shale, greenish-gray to medium-gray, 20%; shale and siltstone (sandy) to sandstone (very silty and shaly), grayish-red to grayish-brown, some very dusky red and dusky-brown, 80%
1510	1544	34	Shale and siltstone, grayish-red to grayish-brown, some very dusky red to dusky-brown, some medium-gray to greenish-gray, micaceous; some sandstone (fine) and siltstone, greenish-gray to medium-gray (cavings)

(OVER, p. 6)

Top. Bottom. Thickness.

1544 - 1563	19	Shale and siltstone, grayish-red to very dusky red, some dusky-brown and grayish-brown (present in increasing amount toward the bottom), partly micaceous, small amount is dolomitic
1563 - 1587	24	Sandstone, medium light to dark-gray, fine to very fine grained, moderately to highly dolomitic, some carbonaceous material; a large amount of interbedded medium dark to dark-gray shale, sandy in part; some grayish-red to grayish-brown siltstone and shale and some greenish-gray shale (probably mostly cavings except at the top)
1587 - 1609	22	Sandstone, light- to medium-gray, fine to very fine grained, very fine grained at the bottom, some rounded medium grains at the top, somewhat dolomitic at the bottom, slightly to moderately carbonaceous
1609 - 1628	19	Sandstone, light-gray to medium-gray and greenish-gray, very fine grained, silty, slightly dolomitic, chloritic; considerable medium- to dark-gray, moderately carbonaceous, very fine sandstone at the top
1628 - 1655	27	Sandstone, medium to medium dark gray, very fine to fine grained, moderately to highly carbonaceous; some dark-gray to black (highly carbonaceous) shale
1655 - 1663	8	Shale, medium- to dark-gray, some dark greenish gray, some grayish-red, 85%; sandstone, medium light to medium-gray, and greenish-gray, slightly to moderately carbonaceous, 15%
1663 - 1671	8	Shale, medium- to dark-gray, some dark greenish gray, small amount of grayish-red to grayish-brown, 40%; sandstone, medium light to medium dark gray, very fine to fine grained, slightly to moderately carbonaceous, 60%; small amount of greenish-gray, fine sandstone
1671 - 1709	38	Sandstone, light- to medium-gray, some greenish-gray in the lower part, very fine to fine-grained, some medium and coarse grains, conglomeratic at the top (some very coarse, broken grains), chloritic at the bottom; small amount is dolomitic, moderate amount is dolomitic at the bottom; small amount of carbonaceous material in the upper part; a large amount of interbedded, medium- to dark-gray and greenish-gray, very sandy siltstone at 1684-1694' and some in the lower part
1709 - 1737	28	Sandstone, light greenish gray and pale-red at the top to light and medium light gray to greenish-gray at the bottom, fine to very fine grained, chloritic, somewhat kaolinitic and carbonaceous, and fine-grained, very silty at the bottom
1737 - 1746	9	Sandstone, light- to medium-gray to greenish-gray, conglomeratic, very fine to very coarse grained, slightly to moderately dolomitic, 70%; siltstone and shale, medium-gray to greenish-gray, 30%
1746 - 1754	8	Siltstone and shale, dark greenish gray to medium dark gray, a few scattered coarse quartz grains
1754 - 1759	5	Siltstone to sandstone (very fine), medium light to medium dark gray; a large amount of medium dark to medium-gray shale
1759 - 1775	16	Shale and some siltstone, medium to medium dark gray, some greenish-gray
1775 - 1813	38	Siltstone to sandstone (very fine and silty), greenish-gray to dark greenish gray with dark-gray to black spots (carbonaceous), containing very coarse grains to pebbles of light-gray quartz; a very large amount of interbedded, dark greenish gray to medium and medium dark gray shale

(Continued on p. 7)

Top.	Bottom.	Thickness.	
1813	- 1893	80	Shale and siltstone, greenish and dark greenish gray to medium and dark-gray, mostly siltstone and slightly dolomitic in the lower part, mostly shale at the top
1893	- 1905	12	No sample
1905	- 1937	32	Siltstone, dusky-brown to very dusky red, small amount of grayish-red to grayish-brown, micaceous; small amount of greenish-gray siltstone
1937	- 1938	1	No sample
1938	- 1957	19	Shale, grayish-red to very dusky red, greenish-gray to medium-gray (with a few carbonaceous streaks); some interbedded, greenish-gray sandstone (very fine) to siltstone
1957	- 1971	14	Sandstone, greenish-gray with some grayish-red spots, fine to very fine grained, chloritic, somewhat kaolinitic; some grayish-red to dusky-brown siltstone and shale
1971	- 1995	24	Siltstone and shale, grayish-red to very dusky red, sandy in part; a moderate amount of greenish-gray, fine to very fine grained sandstone (cavings?)
1995	- 2014	19	Shale and siltstone, grayish-red to very dusky red to grayish-brown, sandy in part, 60% to 70%; siltstone to sandstone (very fine), light- to dark-gray (contains black, carbonaceous specks and streaks), 30% to 40%; some medium dark gray shale
2014	- 2158	144	Siltstone and shale, greenish-gray to medium-gray; some dark-gray to grayish-black, highly carbonaceous siltstone in the lower part
2158	- 2173	15	Siltstone and some shale, medium to medium dark gray, some greenish-gray; a large amount of shale (silty and sandy) to sandstone (silty and shaly), dark-gray to black, moderately to highly carbonaceous, slightly dolomitic
2173	- 2184	11	No sample
2184	- 2192	8	Siltstone and shale, grayish-red to very dusky red, some grayish-brown, sandy to very sandy; a moderate amount of interbedded, light-gray to greenish-gray, sandstone, very fine to fine-grained; some medium-gray to greenish-gray siltstone and shale
2192	- 2216	24	Siltstone and some shale, medium to medium dark gray, some greenish-gray
2216	- 2255	39	Sandstone, very light gray to light greenish gray, some light-gray to greenish-gray, fine to very fine grained, somewhat micaceous and kaolinitic, chloritic; a large amount of medium- to dark-gray and greenish-gray shale and siltstone at the top; small amount is dolomitic
2255	- 2267	12	Sandstone, greenish-gray to medium-gray, fine to very fine grained, silty, 60% to 70%; shale, medium to medium dark gray, 30% to 40%
2267	- 2277	10	Siltstone, grayish-brown to dusky-brown to very dusky red, very sandy to a very fine sandstone with green spots (shale grains), slightly dolomitic; a moderate amount of greenish-gray to medium gray, fine to very fine sandstone; a moderate amount of medium to medium dark gray shale at the top
2277	- 2307	30	CHEMUNG, PORTAGE, GENESEE FORMATIONS, 5107 FEET Sandstone, greenish-gray to medium-gray, some medium dark gray, very fine grained to siltstone, slightly dolomitic; a large amount of interbedded, medium to medium dark gray shale, sandy in part
2307	- 2319	12	Sandstone, very light gray to light greenish gray, very fine grained, slightly dolomitic; some greenish-gray to medium-gray, very fine sandstone at the top; small amount of medium-gray shale at the bottom

Top. Bottom. Thickness.

2319 - 2331	12	Shale and siltstone, medium to medium dark gray and dark greenish gray
2331 - 2391	60	Siltstone, medium light to medium dark gray, some dark-gray at 2363-2372', kaolinitic, somewhat micaceous, moderately to highly dolomitic at the top and slightly to moderately dolomitic at the bottom
2391 - 2430	39	Siltstone and some shale, medium light to medium dark gray and greenish-gray, some brownish-gray in the middle and lower part, moderately dolomitic at the top to slightly dolomitic at the bottom, kaolinitic and micaceous
2430 - 2445	15	Siltstone, medium light to medium dark gray, some dark-gray to grayish-black (carbonaceous), somewhat dolomitic
2445 - 2463	18	Siltstone and some shale, medium to medium dark gray, some medium light gray, small amount of dark-gray at the bottom
2463 - 2480	17	Siltstone and some shale, greenish-gray and medium light gray to medium dark gray; a large amount of interbedded sandstone (very fine) to siltstone, olive-gray to brownish-gray; slightly to moderately dolomitic, moderately to highly dolomitic in part at the top
2480 - 2500	20	Siltstone and shale, medium to medium dark gray to dark greenish gray, small amount of olive-gray
2500 - 2559	59	Siltstone to sandstone (very fine) and shale; at the top, dark greenish gray, some medium to medium dark gray, a little dark-gray; in the middle, dark greenish gray to olive-gray and brownish-gray, medium to medium dark gray; at the bottom, medium to medium dark gray and dark greenish gray
2559 - 2565	6	Sandstone (very fine) to siltstone, greenish-gray and olive-gray to medium and medium dark gray, somewhat dolomitic
2565 - 2585	20	Shale, medium to medium dark gray; siltstone to sandstone, (very fine), dark greenish gray to medium-gray
2585 - 2604	19	Sandstone (very fine) to siltstone, medium light to medium-gray, some greenish-gray, somewhat dolomitic; a large amount of medium dark gray shale
2604 - 2616	12	Siltstone, greenish-gray and dark greenish gray to medium-gray; some medium- to dark-gray shale; small amount of olive-gray and brownish-gray to dark-gray, moderately dolomitic sandstone (very fine)
2616 - 2632	16	No sample
2632 - 2658	26	Shale and siltstone, dark-gray to grayish-black, some brownish-black, slightly to moderately dolomitic in part; a moderate amount of medium- to dark-gray and dark greenish gray siltstone and shale
2658 - 2691	33	Sandstone, light- to medium-gray, some greenish-gray, some dark-gray (carbonaceous spots and streaks), very fine to very coarse grained, shaly and silty in part, slightly to moderately dolomitic; a large amount of medium- to dark-gray siltstone and shale
2691 - 2701	10	Siltstone, greenish-gray and medium light to dark-gray, sandy; small amount of light- to medium-gray, fine- to coarse-grained sandstone
2701 - 2715	14	Siltstone and shale, greenish-gray to medium-gray, some dark-gray to grayish-black; a very large amount of sandstone, light- to medium-gray, some greenish-gray, some dark-gray (black specks), very fine to very coarse grained, silty in part (cavings?)

(Continued on p. 9)

Top.	Bottom.	Thickness.	
2715	- 2765	50	Siltstone and some shale, greenish and dark greenish gray to medium and medium dark gray, sandy in part, very sandy to sandstone (fine to very fine) and a large amount of shale at the bottom, dolomitic in part
2765	- 2822	57	Shale, medium to medium dark gray to olive gray, sandy to a greenish and dark greenish gray sandstone (fine-grained)
2822	- 2843	21	Sandstone, medium- to dark-gray (black spots and streaks of carbonaceous material), fine to very fine grained, and some very light gray to light greenish gray, fine to very coarse grained; some medium- to dark-gray sandstone and siltstone (mostly cavings)
2843	- 2877	34	Shale, dark-gray to brownish-gray, some olive-black, very silty, slightly sideritic; small amount of light- to medium-gray, very fine sandstone at the bottom
2877	- 2890	13	Shale and siltstone, dark-gray, some brownish-black, 50%; sandstone (very fine) to siltstone, greenish-gray to medium-gray, calcareous-in part, moderately to highly dolomitic, 50%
2890	- 2899	9	No sample
2899	- 2916	17	Sandstone, (very fine) to siltstone, very light to medium light gray, some greenish-gray at the top, slightly to moderately dolomitic with highly calcareous spots; some dark-gray to brownish-black siltstone (cavings?)
2916	- 2944	28	Siltstone, medium to medium dark gray to dark greenish gray, much of the greenish-gray at the top contains grayish-brown spots of dolomitic siderite, micaceous, kaolinitic
2944	- 2958	14	Siltstone (sandy) to sandstone (very fine), medium-gray to greenish-gray (with grayish-brown, dolomitic, siderite spots)
2958	- 2971	13	Siltstone, medium-gray to greenish-gray in the upper part to siltstone and sandstone (very fine), greenish-gray to medium-gray with grayish-brown spots, slightly to moderately sideritic
2971	- 3037	66	Siltstone (sandy) to sandstone (very fine, silty), greenish and dark greenish gray to medium and medium dark gray (with grayish-brown to yellowish-brown, slightly dolomitic, sideritic spots); trace of calcite; mostly greenish to dark greenish gray siltstone and sandstone in the upper part; some medium to medium dark gray shale
3037	- 3095	58	Siltstone, greenish to dark greenish gray (with light- to dark-gray, fossiliferous, highly calcareous spots and streaks), slightly to moderately dolomitic, very highly fossiliferous at 3048-3051'; a large amount of interbedded, medium- to dark-gray and some dark greenish gray shale
3095	- 3109	14	Siltstone, dark-gray to grayish-black, very shaly, moderately dolomitic; some greenish-gray and medium- to dark-gray shale
3109	- 3145	36	Siltstone, greenish to dark greenish gray and medium to medium dark gray, mostly greenish-gray in the lower part, micaceous, somewhat kaolinitic; some dark-gray to grayish-black, shaly siltstone at the top
3145	- 3533	388	Siltstone and shale, greenish-gray to medium-gray (with light- to dark-gray, highly calcareous, dolomitic, fossiliferous spots and streaks in the upper part), some medium dark gray; trace of dark-gray sandstone at the bottom
3533	- 3540	7	Sandstone, dark-gray to grayish-black, very fine grained, silty, with medium to very coarse, glassy to milky quartz grains, very shale, highly carbonaceous; trace of calcite

Top.	Bottom.	Thickness.	
3540	- 3548	8	Sandstone, dark-gray to grayish-black, very fine grained, with medium to very coarse grains, 40%; shale and siltstone, medium-gray and dark greenish gray to olive-gray, and some medium dark gray, 60%
3548	- 3605	57	Siltstone and shale, medium-gray to dark greenish gray to olive-gray, some medium dark gray; trace of calcite at the bottom
3605	- 3768	163	Siltstone and shale, medium to medium dark gray to dark greenish gray; a large amount of interbedded, light-gray to light olive gray, very fine sandstone at 3651-3675'; a moderate amount of interbedded, light-gray to light olive gray, very fine, slightly to moderately calcareous and dolomitic sandstone in the lower part
3768	- 3780	12	Siltstone and shale, medium light to dark-gray, some greenish-gray, a few calcareous fossil fragments
3780	- 3789	9	Siltstone and shale, medium light to dark-gray, and some greenish-gray, 40%; sandstone (very fine) to siltstone (sandy), dark-gray to grayish-black (with some light- to dark-gray conglomerate), very shaly, contains spots and streaks of calcite, carbonaceous, 60%
3789	- 3798	9	Sandstone, dark-gray to grayish- and brownish-black, very fine to fine-grained, with medium to very coarse grains, very silty and shaly, highly carbonaceous, some very highly micaceous streaks, slightly to moderately pyritic in part; small amount of calcite
3798	- 3818	20	Sandstone, dark-gray to grayish-black, very fine grained, some fine to coarse grains at the top, highly carbonaceous, trace of calcite, somewhat sideritic
3818	- 3837	19	Shale and siltstone, medium- to dark-gray, some olive-gray; some light to medium light gray, very fine sandstone to siltstone, somewhat calcareous and dolomitic; some dark-gray to grayish-black, carbonaceous, very fine sandstone in the upper part
3837	- 3949	112	Shale and siltstone, medium- to dark-gray, some medium light gray (calcareous and dolomitic, at the top and bottom), some olive-gray, and some greenish to dark greenish gray; a large amount of interbedded, grayish-black to black, carbonaceous shale at the top and a moderate amount toward the bottom
3949	- 4209	260	Siltstone, medium light gray to greenish-gray; shale, medium to medium dark gray, some dark-gray; some calcareous and dolomitic siltstone near the top and bottom
4209	- 4244	35	Siltstone to sandstone (very fine), medium light to medium dark gray to greenish-gray, small amount is calcareous, kaolinitic, and micaceous; some greenish-black to black, highly carbonaceous, silty shale at the top and bottom; a large amount of medium- to dark-gray shale in the upper part
4244	- 4315	71	Shale, grayish- and brownish-black to black, highly carbonaceous, very silty in part, to siltstone; some interbedded shale, medium- to dark-gray, some greenish-gray
4315	- 4426	111	Shale and siltstone, grayish- and brownish-black to black (highly carbonaceous), medium- to dark-gray to brownish-gray, some medium light gray to greenish-gray (calcareous in part), at the bottom, a very large amount of grayish- and brownish-black to black in the upper part
4426	- 4549	123	Siltstone, greenish-gray to medium light gray, some medium-gray, calcareous and dolomitic in part; shale, medium to medium dark gray, some dark-gray

(Continued on p. 11)

Top. Bottom. Thickness.

4549 - 4590	41	Shale, siltstone, and some sandstone (very fine), dark-gray and brownish-gray to grayish- and brownish-black (somewhat carbonaceous), some medium-gray to olive-gray and greenish-gray; small amount of siltstone is dolomitic
4590 - 4708	118	Siltstone, greenish-gray to medium light and medium-gray; shale, medium- to dark-gray; some of the siltstone is moderately calcareous and dolomitic
4708 - 4852	144	Siltstone and shale, medium to medium dark gray, greenish to dark greenish gray, some dark-gray; mostly shale at the bottom
4852 - 4895	43	Siltstone, light olive gray to medium-gray, kaolinitic, micaceous, small amount is dolomitic; trace of calcite; shale, medium to medium dark gray, some dark-gray, small amount of grayish-black to black in the upper part
4895 - 5011	116	Shale, medium to medium dark gray; some light olive gray to medium-gray siltstone
5011 - 5099	88	Shale and siltstone, medium to medium dark gray, some olive-gray to brownish-gray, a large amount of dark-gray to black (carbonaceous, somewhat dolomitic) in the lower part, some dark-gray in the upper part
5099 - 5191	92	Siltstone and some sandstone (very fine), greenish-gray and light olive gray to medium light and medium-gray, dolomitic in lower part; a moderate amount of interbedded, medium- to dark-gray shale; some grayish-black to black, highly carbonaceous, somewhat dolomitic shale in the upper and middle parts
5191 - 5311	120	Siltstone, medium light gray to greenish-gray, to medium-gray, small amount is dolomitic; shale, medium to medium dark gray, some dark-gray
5311 - 5555	244	Siltstone and shale, medium dark gray, some olive-gray, some light-gray, some dark-gray, some grayish-black to black (carbonaceous) at the bottom
5555 - 5683	128	Shale, grayish- and brownish-black to black, highly carbonaceous, slightly dolomitic in part, very silty; shale and some siltstone, medium- to dark-gray, some olive-gray to greenish-gray
5683 - 5825	142	Shale, medium- to dark-gray with grayish-black to black carbonaceous streaks; some siltstone, medium light gray and greenish-gray to medium-gray and olive-gray; a moderate amount at the top; trace of clear. glassy quartz
5825 - 6259	434	Shale, medium to medium dark gray, some dark-gray to black (highly carbonaceous); siltstone, greenish-gray and light olive gray to medium light gray (5985' corrected to 5970')
6259 - 6339	80	Shale and siltstone, medium to medium dark gray, some dark-gray, some dark greenish gray, small amount of olive-gray (sideritic)
6339 - 6500	161	Shale, medium dark to dark-gray, some dark greenish gray, some medium-gray, some grayish-black and an increase in dark-gray in the lower part
6500 - 6550	50	Shale, medium dark gray to grayish-black (carbonaceous), small amount of medium-gray to greenish-gray, pyritic in part
6550 - 6589	39	Shale (very silty), brownish- and grayish-black to black, highly carbonaceous, slightly dolomitic; shale and siltstone, medium- to dark-gray, some medium light gray and some greenish-gray
6589 - 6741	152	Shale, medium to medium dark gray, some dark-gray to black (carbonaceous), some olive-gray; some siltstone, medium light gray to greenish-gray; a large amount of dark-gray to grayish-black shale at 6713-6734'
6741 - 6840	99	Shale, medium dark to dark-gray, some grayish-black to black (carbonaceous)

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Top. Bottom. Thickness.

6840 - 6915	75	Shale and some siltstone, medium dark to dark-gray, some olive-gray to medium-gray, some grayish- and brownish-black to black
6915 - 7052	137	Shale (very silty in part), some siltstone, dark-gray to grayish-black, some olive-gray to brownish-black, some medium to medium dark gray, the medium dark gray and olive-gray increases in amount toward the bottom
7052 - 7214	162	Shale, dark-gray to greenish-black (carbonaceous), with small amount of white, vein dolomite, silty; some medium to medium dark gray shale. There is no sharp separation of the shale at the top with the above interval
7214 - 7384	174	Shale, black, some greenish-black, very highly carbonaceous, slightly to moderately calcareous and somewhat dolomitic in the upper part, contains veinlets of calcite and dolomite
TULLY LIMESTONE, 44 FEET		
7384 - 7409	25	Shale, black, some grayish-black, very highly carbonaceous, with a very small amount of white vein calcite; some limestone, brownish-gray to brownish-black; some of the shale and limestone contain small specks of pyrite
7409 - 7428	19	Shale, black, some grayish-black, very highly carbonaceous, with very small amount of white vein calcite, 80%; limestone, brownish-gray to brownish-black, shaly, dolomitic to dolomite (small part), 20%
HAMILTON AND MARCELLUS SHALES, 532 FEET		
7428 - 7455	27	Shale, black to grayish-black, highly carbonaceous, with a very small amount of white to light-gray, vein calcite; small amount of brownish-gray to brownish-black limestone, dolomitic in part, shaly; some of the shale and limestone contains specks of pyrite
7455 - 7535	80	Shale, grayish-black to black, highly carbonaceous; small amount of brownish-black limestone at the top; trace of light-gray, highly calcareous shale at the bottom
7535 - 7810	275	Shale, grayish-black to black, increase in black toward the bottom, very highly carbonaceous, small amount of white, vein calcite, pyritic in part toward the bottom, slightly to moderately calcareous from 7760 to 7810'
7810 - 7820	10	Shale, dark-gray to grayish-black, some black (highly carbonaceous), moderately calcareous and moderately dolomitic; trace of pyrite
7820 - 7900	80	Shale, black, with some grayish-black in the upper part, very highly carbonaceous, moderately to highly calcareous in part, pyritic in part; small amount of white vein calcite; small amount of brownish-black, very highly micaceous shale and small amount of very highly pyritic shale at the bottom
7900 - 7922	22	Shale, black some grayish-black, very highly carbonaceous, highly calcareous to a shaly limestone; some brownish-gray to brownish-black highly micaceous (altered biotite) shale; small amount of white vein calcite, small amount of highly pyritic shale
7922 - 7933	11	Shale, grayish-black to black, highly carbonaceous, highly calcareous, small amount is highly pyritic; small amount of medium to dark-gray, dolomitic shale
7933 - 7935	2	Shale, grayish-black to black, highly carbonaceous, moderately to highly calcareous, 80%; shale, medium to dark-gray, dolomitic, 20%; small amount of white vein calcite

(Continued on p. 13)



Top Bottom Thickness.

7935 - 7959	24	Shale, medium- to dark-gray, moderately dolomitic in the upper part, moderately calcareous and moderately dolomitic in the lower part, and highly calcareous and somewhat dolomitic at the bottom
7959 - 7960	1	Shale, medium- to dark-gray, a moderate amount of grayish-black to black (carbonaceous), moderately calcareous
HUNTERSVILLE CHERT, 96 FEET		
7960 - 7963	3	Chert, medium-gray to grayish-black, some light-gray, somewhat calcareous and dolomitic, 50%; shale, grayish-black to black, carbonaceous, calcareous, 50%
7963 - 7965	2	Chert, medium-gray to black (silicified shale, carbonaceous), some light to medium light gray, slightly to moderately calcareous; some grayish-black to black shale
7965 - 7971	6	No sample
7971 - 7978	7	Chert, medium-gray to brownish- and grayish-black, some black (carbonaceous, silicified shale), some white to light-gray; a large amount of grayish-black to black, highly carbonaceous shale, somewhat calcareous; some medium- to dark-gray to black (carbonaceous, silicified shale), 10%; shale, grayish- and brownish-black to black, highly carbonaceous, very hard, slightly calcareous, 90%
7983 - 8037	54	Shale, dark-gray to grayish-black, some black, carbonaceous, (slightly calcareous at the top, slightly to moderately dolomitic at the bottom; a very small amount of white vein calcite
8037 - 8044	7	Shale, dark-gray to grayish-black, slightly dolomitic, silicified in part; small amount of medium- to dark-gray chert with shale content
8044 - 8056	12	Shale, dark-gray to grayish-black, silicified in part, slightly calcareous at the top to moderately calcareous at the bottom, with a very small amount of white vein calcite; some medium- to dark-gray chert in the upper part
HEIDERBERG LIMESTONE, 73 FEET (?????)		
8056 - 8067	11	Sandstone (very fine to siltstone, very highly calcareous) to limestone (very sandy and silty), medium-gray to grayish-black with light-gray spots, very shaly in part, somewhat cherty; a large amount of white vein calcite at the top; a large amount of dark-gray to black shale (cavings)
8067 - 8076	9	Limestone, medium- to dark-gray (with a small amount of white vein calcite), very sandy (very fine) and very silty, with some medium to coarse grains in the lower part, very sandy a highly calcareous sandstone in the middle part, shaly part, trace of chert; trace of pyrite at the top; some dark gray to black shale (cavings)
8076 - 8078	2	Limestone, medium- to dark-gray, very sandy, somewhat cherty; this interval is mostly grayish-black to black shale (cavings)
8078 - 8084	6	Limestone, medium light to dark-gray, very sandy (very fine to medium-grained), somewhat cherty, slightly shaly; some dark-gray to black shale (cavings)
8084 - 8089	5	Sandstone, light- to medium-grained, very cherty, very highly calcareous to a very sandy limestone at the bottom; contains some carbonaceous material
8089 - 8093	4	Sandstone (very fine, silty), dark-gray to grayish-black (shaly), with light- to medium-gray spots, very highly calcareous with some limestone (very sandy)

Top.	Bottom.	Thickness.	
8093	- 8103	10	Sandstone, medium-gray to grayish-black, with a small amount of white-vein calcite, very fine grained, with some medium grains in the upper part and a large amount of medium grains in the lower part, contains some shale, carbonaceous material and a few fossil fragments
8103	- 8107	4	Sandstone, light- to medium-gray, very fine to fine-grained, with some medium grains at the top, highly calcareous, contains some shaly, carbonaceous material
8107	- 8111	4	Sandstone, medium- to dark-gray, coarse to very coarse grained, with a large amount of fine to medium grains in the lower part, highly calcareous, somewhat dolomitic, contains some carbonaceous material
8111	- 8116	5	Sandstone, medium- to dark-gray, some grayish-black (carbonaceous, shaly), highly calcareous, very fine to fine-grained, some medium grains, cherty
8116	- 8120	4	Sandstone, dark-gray to grayish-black, very fine to fine-grained, with medium to coarse, subrounded to rounded grains, contains much carbonaceous, shaly material, moderately calcareous
8120	- 8124	4	Sandstone, medium-gray to grayish-black, very fine to fine-grained, with a few medium grains, moderately calcareous, slightly dolomitic, very shaly in part
8124	- 8125	1	No sample
8125	- 8127	2	Sandstone, medium- to dark-gray, very fine grained, some fine grains, moderately calcareous, shaly in part
8127	- 8129	2	Sandstone, medium-gray to grayish-black, very fine to fine-grained, moderately to highly calcareous, 60%; sandstone, very light to light-gray, fine- to medium-grained, quartzose (clear and glassy), slightly calcareous, some carbonaceous material, 40%
			ORISKANY SANDSTONE, 41 FEET
8129	- 8135	6	Sandstone, very light to light-gray, quartzose, fine- to medium-grained, most of the quartz grains are clear and glassy, subrounded, hard, slightly calcareous, (gas at 8129-8134)
8135	- 8141	6	Sandstone, very light to light-gray, fine-grained, some medium and some very fine grains, slightly calcareous, moderately calcareous at the bottom
8141	- 8144	3	Sandstone, very light to light-gray, fine to very fine grained, mostly quartz, moderately calcareous, highly calcareous in part; a very large amount of dark-gray to grayish-black shale cavings
8144	- 8148	4	Sandstone, very light to light-gray, fine-grained, very fine to fine-grained at the bottom, moderately calcareous, mostly quartz (gas at 8148')
8148	- 8154	6	Sandstone, very light to light-gray, fine- to medium-grained, (with some medium light to medium-gray, very fine grained streaks in the lower part), some rounded coarse grains in the upper part, highly calcareous
8154	- 8156	2	Sandstone, light-gray, very fine to fine-grained, highly to very highly calcareous
8156	- 8160	4	Sandstone, light- to medium-gray, fine to very fine grained, mostly quartz, with calcite cement (highly to very highly calcareous)
8160	- 8163	3	Sandstone, medium-gray, some light-gray, with dark-gray streaks, fine-grained, some medium and some very fine grains, very highly calcareous

(Continued on p. 15)

Top.	Bottom.	Thickness.	
8163	- 8170	7	Sandstone, light-gray, fine-grained, very fine to fine-grained toward the bottom, highly calcareous HELDERBERG LIMESTONE, 31+ FEET
8170	- 8172	2	Sandstone, light- to medium-gray, some dark-gray, fine to very fine grained, highly calcareous to a very sandy limestone
8172	- 8187	15	Sandstone, medium- to dark-gray, with light-gray spots, very fine grained, with some fine grains, very highly calcareous to a very sandy limestone, contains some carbonaceous, shaly material
8187	- 8190	3	Sandstone, light- to medium-gray, with some dark-gray streaks, very fine grained to siltstone, very highly calcareous, contains a little carbonaceous shaly material
8190	- 8193	3	Limestone, medium- to dark-gray, with light-gray spots, very sandy to silty to a highly calcareous, silty sandstone (very fine), contains a small amount of carbonaceous shaly material and a few fossil fragments
8193	- 8197	4	No sample
8197	- 8201	4	Sandstone, medium-gray to grayish-black, with light-gray spots, very fine grained to coarse silt with some medium to very coarse grains, some carbonaceous shaly material, highly calcareous