



New Location X  
 Drill Deeper  
 Abandonment

1 Samples 28-I (0-7445) Examined by Flowers (Record on file) F.B.889 P28 to 32

Company Hope Natural Gas Co.  
 Address Clarksburg, W.Va.  
 Farm W.Va. & Pittsburgh Railroad Co.  
 Tract \_\_\_\_\_ Acres 12000 Lease No. 60012  
 Well (Farm) No. \_\_\_\_\_ Serial No. 9227  
 Elevation (Spirit Level) 2521'  
 Quadrangle Webster Springs - SW  
 County Webster District Glade  
 Engineer W.M. Flowers  
 Engineer's Registration No. 900  
 File No. \_\_\_\_\_ Drawing No. \_\_\_\_\_  
 Date 4-8-48 Scale 1" = 600'

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

WELL LOCATION MAP  
 FILE NO. WEB-2

plugged 10/27/49 - 0+6 Dia Ann. Rpt  
 + 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.

WEST VIRGINIA DEPARTMENT OF MINES  
OIL & GAS DIVISION  
WELL RECORD

Permit No. Web 2  
Webster Springs Quad.  
Company  
Address  
Farm  
Location  
Well No.  
District  
Surface  
Mineral  
Commenced  
Completed  
Fresh Water  
Salt Water

Hope Natural Gas Company  
445 West Main St., Clarksburg, W.Va.  
W.Va. & Pitts. R.R. Co. A. 12000  
9227 Elev. 2521  
Glade Webster County  
June 16, 1948  
Sept. 17, 1949  
15' 30"  
980'; 1120'

Gas Well  
CASING & TUBING

20	40	40
13	1389	1389
5/8	2739	2739
7	7128	7128

Casing cemented  
7" csg. set in cement

No coal recorded

Surface	0	42	Slate Shell	Dk Gr	4398	5155
Red Rock	42	110	Lime	Dk Gr	5155	5243
Sand Gr H	110	143	Slate Shell	Dk Gr	5243	5395
Red Rock, Slate S	143	321	Slate Shell	Br	5395	5502
Sand Gr	321	337	Slate Shell	Gr	5502	5710
Red Rock	337	389	Lime	Gr	5710	5776
Red Rock Shells	389	488	Slate Shell		5776	5925
Slate Shell S	488	508	Hard Lime	Gr	5925	5980
Red Rock	508	695	Shale	Gr	5980	6003
Slate S	695	704	Lime	Gr	6003	6029
Red Rock & Shell	704	762	Slate Shell		6029	6180
Sand H	762	770	Slate Shell		6180	6385
Slate, Lime Gr H	770	872				
Lime Dk	872	877	Show gas 955 -			
Slate	877	891	Show gas 1458 -			
Lime Gr	891	899	Show gas 2116 -			
Slate S	899	910	Show gas 2389 -			
Sand, Slate H	910	983	show gas 955 -			
Lime, Lime Dk Gr	983	1043	Gas 2405 -			
Slate	1043	1046				
Lime Dk Gr	1046	1084	Shale, dk gray to black		6385	7123
Slate	1084	1088	Huntersville Chert		7123	7272
Lime Dk Gr	1088	1164	Oriskany		7272	7362
Sandy Lime	1164	1166	Helderberg Lime		7362	7448
Lime Gr	1166	1336	TD		7448	
Lime Dk	1336	1374				
Red Rock	1374	1388				
Sandy Lime	1388	1438				
Sand H	1438	1476	Show gas 1458 -			
Sandy Lime	1476	1492				
Slate Shell	1492	1508				
Broken Lime Gr	1508	1523				
Broken Sand	1523	1577				
Slate Shell	1577	1650				
Sand H	1650	1665				
Slate S	1665	1669				
Slate Shell	1669	1719				
Sand H	1730	1740				
Slate Shell	1740	1745				
Sandy Lime	1745	1757				
Slate Shell, Sand Gr	1757	2089				
Sand	2089	2130				
Slate Shell	2130	2300				
Sand H	2300	2334				
Slate Shell	2334	2369				
Sand	2369	2390				
Slate Shell	2390	2400				
Sand H	2400	2435				
Slate Shell, Lime	2435	3590				
Broken Sand	3590	3620				
Slate Shell	3620	3731				
Broken Sand H	3731	3750				
Slate Shell	3750	3762				
Sand H	3762	3775				
Lime, Slate Shell Gr	3775	4398				

Examined by R.R. Flowers  
(record on file)

7123	7272	7362
2521	2521	2521
4602	4751	4841

Glade District, Webster County, W. Va.

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

Located 0.22 mi. S. of 38° 20' and 1.94 mi. W. of 80° 25' - SW - Webster Springs  
Quadrangle.

Elevation, 2521' L.

Permit Webster-2.

Drilling commenced June 16, 1948; completed Sept. 17, 1949.

Fresh water at 15' and 30'.

Salt water at 980', 1120', and 7300'.

20" casing, 40'; 13", 1389'; 8 $\frac{5}{8}$ ", 2739'; 7", 7128'; all left in.

7" casing set in cement.

No coal recorded.

Dry hole.

Show gas, 955'; show gas, 1458'; show gas, 2116'; show gas, 2389'; show gas, 2405'.

Section based on samples from 0 to 7448'; examined by Russell R. Flowers.

Record to ROT from Flowers December 27, 1951.

Top. Bottom. Thickness.

Top	Bottom	Thickness	Description
NEW RIVER GROUP, 20+ FEET			
0	20	20	Sandstone, very light gray to yellowish-brown; conglomeratic; fine- to coarse-grained, with many very coarse grains to granules of quartz and possibly pebbles of rock fragments; contains considerable limonite due to weathering
MAUCH CHUNK SERIES, 1001 FEET			
20	30	10	Clay-shale, brownish-gray to brownish-black, some dark greenish gray
30	37	7	Siltstone, medium-dark gray to dark greenish gray, some dark-gray, highly micaceous (muscovite and biotite)
37	65	28	Clay and clay-shale, dusky-brown to very dusky red, some dark greenish gray to medium dark gray in the upper part, a very large amount of medium- to dark-gray with some dark greenish gray in the middle and lower parts
65	85	20	Clay-shale, grayish-brown
85	103	18	Clay-shale, grayish-brown to dusky-brown, silty and sandy in part; some medium-gray siltstone to dark greenish gray, very silty and very sandy clay, slightly dolomitic
103	124	21	Shale, (very silty and silty) to siltstone and sandstone (very shaly), dusky-brown, some medium dark gray to dark greenish gray; calcareous in part
124	139	15	Sandstone, light-gray to greenish-gray (chloritic), fine-grained, some medium grains, argillaceous to a medium dark gray, very sandy, soft shale, calcareous at top to highly calcareous in the lower part
139	150	11	Clay-shale, grayish-brown, some dark greenish gray, some limestone fragments
150	165	15	Shale, dark-gray with light- to medium-gray, fossiliferous limestone spots
165	243	78	Shale, grayish-brown, some dusky-brown, silty; mostly dusky-brown siltstone to fine sandstone at 182' to 194'
243	252	9	Sandstone, greenish-gray to light-gray, very fine grained, highly calcareous, chloritic; some greenish-gray to medium-gray siltstone
252	273	21	Clay-shale, grayish-brown, some dusky-brown to brownish-gray; some yellowish-brown limestone nodules
273	278	5	Clay, grayish-brown to reddish-gray
278	288	10	Shale and siltstone, dusky-brown to brownish-gray; some greenish-gray to medium dark gray siltstone

(OVER, p. 2)

Top.	Bottom.	Thickness.	
288	- 301	13	Siltstone, dark-greenish gray to medium dark gray with carbonaceous specks and streaks
301	- 311	10	Limestone, gray to greenish-gray and olive-gray, nodular, highly argillaceous; some grayish-brown to very dusky red clay-shale
311	- 321	10	Clay-shale, grayish-brown to very dusky red with limestone nodules
321	- 327	6	Sandstone, greenish-gray to light-gray, very fine grained, calcareous; some dusky-brown, very silty shale
327	- 393	66	Clay-shale, grayish-brown, some dusky-brown, some medium dark gray to dark greenish gray at the top, mostly dusky-brown siltstone to very fine sandstone at the bottom
393	- 423	30	Clay-shale, grayish-brown to very dusky red, some dusky-brown, some medium-gray to dark greenish gray at the top
423	- 445	22	Siltstone to sandstone (very fine), dusky-brown, very shaly, micaceous, calcareous in part; mostly silty shale at the bottom
445	- 455	10	Sandstone, pale-brown to greenish-gray, very fine grained, highly calcareous, micaceous, and chloritic; some dusky-brown to very dusky red, silty shale
455	- 476	21	Shale, grayish-brown and dusky-brown to very dusky red, silty in part
476	- 493	17	Clay-shale, medium dark to dark-gray, dark greenish gray; some grayish-brown to grayish-red shale in the upper part; a large amount of olive-gray, silty, highly fossiliferous limestone in the lower part
493	- 508	15	Shale, brownish-gray to grayish-brown (silty), some dark greenish gray to dark-gray and grayish-black
508	- 520	12	Siltstone and sandstone (very fine), dusky-brown, very shaly to grayish-brown, silty shale, some dark greenish gray to dark gray and grayish-black, highly calcareous in part
520	- 525	5	Shale, grayish-brown to grayish-red, some dark greenish gray dark-gray
525	- 550	25	No sample
550	- 577	27	Shale, very dusky red to grayish-brown
577	- 582	5	Shale, grayish-brown to dusky-brown, silty
582	- 626	44	Siltstone and sandstone (very fine), dusky-brown to very dusky red, very shaly to a silty and sandy shale
626	- 670	44	Shale, grayish-brown to very dusky red, mostly dusky-brown to very dusky red at 634 to 650', silty in part
670	- 690	20	No sample
690	- 696	6	Siltstone to sandstone (very shaly) to shale (silty and sandy), dusky-brown, some brownish-gray; some grayish-brown to very dusky red shale
696	- 702	6	Shale, medium dark to dark-gray with limestone nodules
702	- 711	9	Shale, grayish-red to grayish-brown, some medium dark gray to dark greenish gray
711	- 718	7	No sample
718	- 723	5	Shale, grayish-brown to very dusky red
723	- 728	5	Siltstone, dusky-brown, very shaly, micaceous
728	- 759	31	Shale, dusky-brown to grayish-red, silty
759	- 762	3	Shale, medium dark gray to dark greenish gray, sandy in part with some greenish-gray, very fine sandstone; some limestone, olive-gray to greenish-black
762	- 770	8	Sandstone, light- to medium-gray, very fine grained, argillaceous, calcareous in part

(Continued on p. 3)

Top.	Bottom.	Thickness.	
770	- 775	5	Shale, dark-gray to medium dark gray and dark greenish gray, small amount of grayish-black to black
775	- 782	7	Shale, grayish-red to grayish-brown and brownish-gray, some medium dark to dark-gray (silty)
782	- 792	10	Shale and siltstone, medium dark to dark-gray
792	- 798	6	Siltstone, medium to medium dark gray, micaceous, chloritic and kaolinitic, calcareous
798	- 820	22	Shale, medium dark to dark-gray, very silty; contains highly fossiliferous limestone nodules at the top and bottom
820	- 879	59	Limestone, dark-gray to grayish-black, very highly argillaceous, with some calcareous shale, highly fossiliferous (crinoidal)
879	- 891	12	Shale, dark-gray with fossiliferous limestone nodules
891	- 896	5	Limestone, light olive gray to olive-gray, oolitic
896	- 902	6	Sandstone, greenish-gray to dark greenish gray, very fine to fine-grained, argillaceous, calcareous in part
902	- 906	4	Shale, dark-gray to grayish-black, silty and sandy
906	- 984	78	Sandstone, very light to light-gray, very fine to fine-grained, quartzose, subrounded; some dark-gray to grayish-black shale streaks at the top
984	- 1006	22	Limestone (highly argillaceous) to a calcareous shale, dark-gray to grayish-black and olive-black, highly fossiliferous (crinoidal)
1006	- 1016	10	Shale, dark-gray, highly calcareous, silty, highly calcareous (limestone oolites) to a shaly limestone, oolitic at the bottom
1016	- 1021	5	Limestone, medium-gray to brownish-gray, very silty and sandy (very fine), highly argillaceous oolite (appears to be derived from the erosion of the underlying oolite); some medium dark gray to dark greenish gray, highly calcareous, fossiliferous shale at the bottom
			GREENBRIER LIMESTONE, 350 FEET
1021	- 1041	20	Limestone oolite, light olive gray to olive-gray, fine to coarse, mostly medium to very coarse at 1023 to 1029'; much of this oolite is friable, contains a little silt (quartz crystals), some fossil fragments
1041	- 1050	9	Shale, medium dark to dark-gray and grayish-black to black, highly calcareous at the top to a brownish-black and grayish-black, very shaly limestone and calcareous shale at the bottom
1050	- 1055	5	Limestone, olive-black to brownish-black, very shaly
1055	- 1058	3	Limestone oolite, brownish-gray to olive-black, oolites are mostly fine-grained, somewhat silty and sandy (very fine to fine), somewhat argillaceous
1058	- 1063	5	Limestone oolite, dark-gray to olive-black, very sandy (fine), shaly and silty in part
1063	- 1069	6	Siltstone, dark-gray, very highly calcareous (mostly oolites) in the upper part to a calcareous (oolites), very argillaceous siltstone with some silty shale in the lower part
1069	- 1074	5	Limestone oolite, light-gray to light olive gray, some olive-gray to dark-gray, mostly tightly cemented, somewhat silty and sandy (very fine)
1074	- 1076	2	Limestone, olive-gray to medium-gray, shaly and silty
1076	- 1084	8	Limestone oolite, light-gray to light olive gray, some olive-gray, fossiliferous, many of the oolites are flattened and distorted, slightly silty (quartz crystals)
1084	- 1090	6	Siltstone and shale, dark greenish gray to dark-gray, highly calcareous

Top.	Bottom.	Thickness.	
1090	- 1110	20	Limestone oolite, olive-gray, light-gray to olive-gray and fossiliferous at the top
1110	- 1119	9	Limestone, olive-gray to brownish-black, dolomitic, somewhat shaly
1119	- 1134	15	Limestone oolite, olive-gray; at the bottom, olive-gray to dark-gray, somewhat oolitic, shaly limestone
1134	- 1159	25	Limestone (very shaly) and some shale (highly calcareous), olive-gray to grayish-black
1159	- 1165	6	Limestone, olive-gray to brownish-black, shaly, silty, highly oolitic
1165	- 1172	7	Limestone oolite, light-gray to light olive gray, oolites are medium to coarse-grained
1172	- 1195	23	Limestone, olive-gray, very shaly, dolomitic in the lower part
1195	- 1207	12	Shale to siltstone, olive-gray to dark greenish gray, very highly calcareous, fossiliferous; some light-gray limestone oolite in the middle part; mostly siltstone in the lower part
1207	- 1217	10	Limestone oolite, olive-gray to medium-gray, very silty and very sandy (very fine), with some highly calcareous sandstone
1217	- 1225	8	Limestone, olive-gray, shaly, very shaly at the bottom; dolomitic
1225	- 1236	11	Limestone, olive-gray, silty
1236	- 1246	10	Limestone oolite, olive-gray, argillaceous and silty, with a large amount of medium dark gray to dark greenish gray, calcareous siltstone in the lower part
1246	- 1253	7	Limestone oolite, olive-gray to medium dark gray, very silty to sandy (very fine), argillaceous
1253	- 1259	6	Limestone, olive-gray, silty and sandy (very fine), oolitic at the bottom
1259	- 1271	12	Limestone oolite, light-gray
1271	- 1281	10	Limestone, very light to light-gray, highly dolomitic, silty
1281	- 1287	6	Limestone, light olive-gray to greenish-gray, dolomitic, argillaceous
1287	- 1295	8	Limestone (very shaly) to shale (highly calcareous), olive-gray and dark greenish gray to dark-gray, some brownish-gray to grayish-brown at the top, dolomitic in part
1295	- 1304	9	Limestone, light olive gray to olive-gray at the top to olive-gray and some olive-gray to dark-gray at the bottom, silty and shaly, somewhat dolomitic in part
1304	- 1313	9	Limestone, olive-gray; some fine- to coarse-grained, subrounded, very light gray sandstone; many of the grains have crystal facets (cavings?)
1313	- 1325	12	Shale, brownish-black to black, highly calcareous, limestone oolite, olive-gray to brownish-gray, very silty; some dark-gray to olive-gray calcareous, dolomitic siltstone at the top
1325	- 1332	7	Limestone, light olive gray to olive-gray, silty (very fine)
1332	- 1336	4	Siltstone (highly dolomitic) and some dolomite (very silty), medium to medium dark gray (with greenish cast), calcareous
1336	- 1351	15	Siltstone to shale, dark-gray to brownish-black, highly calcareous, dolomitic
1351	- 1358	7	Limestone (very shaly), olive-gray to dark-gray, highly dolomitic dolomite (silty) to siltstone (highly dolomitic), medium-gray to brownish-gray, calcareous, argillaceous
1358	- 1363	5	Dolomite (very silty, shaly), to siltstone and shale (highly dolomitic), medium dark gray to dark greenish gray, olive-gray to dark-gray; a large amount of white anhydrite
1363	- 1371	8	Dolomite, dark-gray to brownish-black, silty and shaly, calcareous; some anhydrite

(Continued on p. 5)

Top. Bottom. Thickness.

## MACGRADY FACIES OF POCONO, 16 FEET

1371 - 1379	8	Siltstone and some shale, medium dark gray to dark greenish gray and some grayish-red at the top; brownish-gray to grayish-red and some dark greenish gray at the bottom
1379 - 1383	4	Siltstone, brownish-gray, some grayish-red, very shaly; some medium dark to dark-gray and dark greenish gray siltstone and shale
1383 - 1387	4	Shale and siltstone, medium dark to dark-gray; some dark greenish gray, some brownish-gray to grayish-red

## POCONO FORMATION, 213 FEET

1387 - 1394	7	Sandstone (very fine to siltstone), medium- to medium dark gray, contains many fine to coarse sand (quartz) grains in the lower part, small amount of dark-gray shaly to shale; trace of calcite
1394 - 1414	20	Siltstone, medium dark gray to dark greenish gray; some dark-gray shale; some light- to dark-gray, very fine sandstone to siltstone at the bottom
1414 - 1459	45	Siltstone, brownish-gray to medium- and medium dark gray, coarse; mostly brownish-gray at 1414 to 1421', 1427 to 1429', and 1434 to 1443'
1459 - 1476	17	Siltstone, medium to medium dark gray, some dark-gray (shaly)
1476 - 1482	6	Siltstone, medium dark gray, some grayish-black, (pyritic), coarse
1482 - 1488	6	Siltstone, medium and medium dark gray; some dark-gray, silty shale
1488 - 1502	14	Siltstone and shale, medium dark to dark-gray, some medium-gray; some grayish-black to black, pyritic, very shaly siltstone in the upper part
1502 - 1514	12	Siltstone, medium dark gray
1514 - 1528	14	Siltstone, medium dark gray, some brownish-gray, a large amount of grayish-black to black at the top, coarse silt
1528 - 1570	42	Siltstone, medium dark gray; some dark-gray to grayish-black, shaly siltstone to shale, a large amount at 1551 to 1560'
1570 - 1577	7	Shale, dark-gray to grayish-black, silty
1577 - 1589	12	Shale, grayish-black to black, somewhat pyritic (Sunbury Shale?); small amount of light-gray, very fine sandstone to siltstone
1589 - 1600	11	Siltstone to sandstone (very fine), dark-gray, shaly, pyritic, slightly calcareous (Berea?)

## DEVONIAN SHALES, 5523 FEET

1600 - 1625	25	Shale and siltstone, medium dark to dark-gray; some light-gray to light olive gray, kaolinitic siltstone to very fine sandstone at 1608 to 1614'
1625 - 1633	8	Siltstone to sandstone (very fine), light- to medium-gray and olive-gray, some dark greenish gray, grayish-black to black (shaly); some medium dark to dark-gray shale
1633 - 1647	14	Siltstone, dark greenish gray, chloritic, micaceous; a large amount of medium dark to dark-gray shale
1647 - 1652	5	Sandstone, light-gray, conglomeratic, very fine to fine-grained, with coarse quartz grains to pebbles
1652 - 1662	10	Sandstone, light-gray to brownish-gray, very fine to fine-grained, some coarse grains, argillaceous
1662 - 1673	11	Sandstone, light- to medium light gray, very fine to fine-grained some medium-gray to dark-gray sandstone (very fine) to siltstone (very shaly); a large amount of medium dark to dark-gray shale

(OVER, p. 6)

Top.	Bottom.	Thickness.	
1673	- 1719	46	Shale, dark-gray, some olive-gray to dark-gray; some medium-gray sandstone (very fine to medium dark gray and olive-gray siltstone)
1719	- 1726	7	Sandstone, brownish-gray, some medium dark gray at the top, very fine to medium-grained (with some coarse quartz grains to pebbles), subangular
1726	- 1728	2	Shale, medium dark to dark-gray
1728	- 1735	7	Shale, (very sandy) to sandstone (very highly argillaceous, very fine to fine-grained), dark-gray, some medium dark gray to dark greenish gray, contains "red" sand grains
1735	- 1745	10	Shale, mottled dark greenish gray with some grayish-red, sandy in part to a highly argillaceous sandstone (very fine to fine), many of the sand grains are "red", some medium dark to dark-gray shale and sandstone in the lower part
1745	- 1755	10	Sandstone, light- to medium-gray, very fine grained, some carbonaceous material in the upper part, kaolinitic in the lower part
1755	- 1762	7	Sandstone (very fine) to siltstone, medium- to medium dark gray, some light-gray; shale, medium dark to dark-gray, silty; some dark greenish gray shale (sandy in part) to sandstone (very fine, highly argillaceous)
1762	- 1784	22	Sandstone, medium-gray (argillaceous and somewhat carbonaceous) in the upper part, light-gray (slightly carbonaceous) in the lower part, very fine grained
1784	- 1789	5	Sandstone, greenish-gray to dark greenish gray, some dark-gray to grayish-black, very fine, highly argillaceous; some light- to medium-gray, fine to coarse sandstone with moderate yellowish brown spots of dolomite
1789	- 1796	7	Shale (sandy) to siltstone and sandstone (very fine, highly argillaceous), medium- to dark-gray, some grayish-black, highly dolomitic in part
1796	- 1803	7	Sandstone (very fine) to siltstone, brownish-gray to medium dark gray, highly dolomitic, argillaceous; some grayish-black shale
1803	- 1812	9	Shale and siltstone, medium dark to dark-gray, some of the dark-gray shale has "red" sand grains, some dark yellowish brown (sideritic)
1812	- 1846	34	Siltstone to sandstone (very fine), medium-gray, contains kaolinitic material and black carbonaceous specks, somewhat micaceous and chloritic
1846	- 1856	10	Shale and some siltstone, medium dark to dark-gray
1856	- 1859	3	Siltstone, brownish-gray to dark-gray, sandy (fine to coarse-grained; some quartz granules)
1859	- 1870	11	Siltstone, medium- to medium dark gray and dark greenish gray
1870	- 1886	16	Shale, medium dark to dark-gray; some olive-gray to medium dark gray siltstone in the lower part
1886	- 1893	7	Siltstone, brownish-gray (shaly), dark greenish-gray to medium dark gray, some olive-gray
1893	- 1924	31	Siltstone, olive-gray to medium-gray, some medium dark gray to dark greenish gray, some brownish-gray at the top; some medium dark to dark-gray shale
1924	- 1966	42	Shale and some siltstone, medium dark to dark-gray
1966	- 1981	15	Sandstone, light-gray, very fine grained, fine- to medium-grained and some very coarse quartz grains in part at the top, silty and somewhat argillaceous
1981	- 2009	28	Sandstone (very fine, very silty), greenish-gray to olive-gray and some medium-gray in the upper part, medium to medium dark gray in the upper part, medium-gray to brownish-gray in the lower part, light- to medium-gray at the bottom
2009	- 2030	21	Shale, dark-gray, silty

(Continued on p. 7)



Top. Bottom. Thickness.

2030	- 2041	11	Sandstone, medium- to dark-gray, very fine grained, some light- to medium-gray, fine- to very coarse grained at the top; some dark greenish gray to medium dark gray, very fine sandstone to sandy siltstone
2041	- 2066	25	Shale and siltstone, medium dark to dark-gray, some medium dark gray to dark greenish gray
2066	- 2084	18	Sandstone, brownish-gray to dark-gray, very fine grained
2084	- 2091	7	Shale, medium dark to dark-gray
2091	- 2115	24	Sandstone, light-gray, very fine grained, fine to very coarse with granules at the bottom
2115	- 2124	9	Siltstone to very fine sandstone, light- to medium-gray, some medium dark gray to olive-gray and dark greenish gray in the upper part
2124	- 2141	17	Shale and some siltstone, dark-gray
2141	- 2153	12	Shale and siltstone, dark-gray; some light- to medium-gray, very fine sandstone
2153	- 2162	9	Shale, dark-gray, silty; some medium dark gray to dark greenish gray siltstone
2162	- 2170	8	Sandstone, dark-gray, some light-gray, very fine grained, argillaceous
2170	- 2217	47	Siltstone to very fine sandstone, light-gray to medium dark gray and dark greenish gray; shale, dark-gray
2217	- 2231	14	Siltstone and shale, medium dark to dark-gray
2231	- 2256	25	Sandstone (very fine) to siltstone, medium-gray to grayish-black, a large amount of medium- to medium dark gray and some dark greenish gray in the lower part, highly argillaceous in part; shale, dark-gray, sandy and silty
2256	- 2296	40	Siltstone, medium- to medium dark gray and dark greenish gray; a large amount of dark-gray shale
2296	- 2309	13	Sandstone, brownish-gray to dark-gray, very fine, very silty; some dark-gray shale
2309	- 2329	20	Sandstone, light- to medium-gray, some medium dark gray to dark greenish gray, very fine grained; a large amount of medium dark to dark-gray shale
2329	- 2351	22	Siltstone to very fine sandstone, medium- to medium dark gray to dark greenish gray; shale, medium dark to dark-gray
2351	- 2367	16	Siltstone, medium dark gray to dark greenish gray; some dark-gray shale in the lower part
2367	- 2383	16	Siltstone to sandstone (very fine), light- to dark-gray, dolomitic, mostly light-gray in the upper part; a large amount of dark-gray shale
2383	- 2405	22	Siltstone and shale, medium dark to dark-gray, some medium-gray at the bottom
2405	- 2537	132	Siltstone, medium- to medium dark gray (with greenish cast); some dark-gray shale, calcareous and dolomitic in part; at 2441 to 2450' some dark-gray siltstone; a large amount of shale at 2466 to 2473'; some dark-gray to grayish-black and highly calcareous shale at the bottom
2537	- 2542	5	Siltstone, light- to medium-gray, coarse, calcareous
2542	- 2558	16	Siltstone, medium to dark-gray
2558	- 2629	71	Siltstone, olive-gray and dark greenish gray to medium dark gray; some interbedded medium dark to dark-gray shale
2629	- 2645	16	Siltstone, medium dark gray, some medium dark gray to dark greenish gray, some grayish-black, calcareous in part
2645	- 2771	126	Siltstone and some shale, medium dark gray (with greenish cast), some dark-gray, calcareous in part; a large amount of dark-gray to grayish-black siltstone to very fine sandstone at 2653 to 2661'

Top.	Bottom.	Thickness.	
2771	- 2847	76	Siltstone, medium dark gray to dark greenish gray, some medium dark to dark-gray (mostly shale), calcareous, highly calcareous (fossil fragments) at 2771 to 2791' and 2825 to 2847'
2847	- 2858	11	No sample
2858	- 2871	13	Siltstone and shale, medium dark to dark-gray, calcareous in part; some dark-gray to grayish-black, very shaly siltstone
2871	- 2913	42	Siltstone and some shale, medium dark gray to dark greenish gray, some brownish-gray to brownish-black and grayish-black, calcareous and dolomitic in part
2913	- 2953	40	Siltstone, medium dark to dark-gray, shaly, highly calcareous in part (fossil fragments), slightly dolomitic
2953	- 3002	49	Siltstone and some shale, medium- to medium dark gray (with greenish and olive casts); some dark-gray to grayish-black
3002	- 3209	207	Siltstone and shale, medium dark to dark-gray, a moderate to large amount of dark-gray to grayish-black from 3117 to 3170', some dark-gray at the bottom
3209	- 3248	39	Siltstone, medium- to medium dark gray, some brownish-gray; moderate to large amount of dark-gray to black shale
3248	- 3360	112	Siltstone, medium to medium dark gray, dolomitic in part; some dark-gray to grayish-black shale, some of the darker fragments contain <u>sporangites</u>
3360	- 3585	225	Siltstone and shale, medium dark to dark-gray; some medium-gray siltstone; some dark-gray to grayish-black, silty shale at 3419 to 3455', a large amount at 3542 to 3553', and some grayish-black, shaly siltstone at the bottom
3585	- 3595	10	Siltstone to shale, grayish-black, some brownish-black; some medium-gray siltstone
3595	- 3684	89	Siltstone, medium- to medium dark gray; a moderate to large amount of dark-gray shale
3684	- 3730	46	Siltstone and shale, medium dark to dark-gray, some grayish-black (shale), some medium-gray (siltstone)
3730	- 3810	80	Siltstone, medium- to medium dark gray, dolomitic; a moderate to large amount of dark-gray to grayish-black shale and siltstone (shaly); mostly siltstone from 3771 to 3810'
3810	- 3917	107	Siltstone, medium dark gray (with greenish cast); some medium dark to dark-gray shale
3917	- 3934	17	Siltstone, medium dark gray to olive-gray and brownish-gray; some medium dark gray shale
3934	- 4329	395	Siltstone and some shale, medium dark gray, some dark-gray, small amount is calcareous and dolomitic; some dark-gray to grayish-black shale at 4031 to 4048'
4329	- 4627	298	Shale and siltstone, dark-gray, some streaks and specks of carbonaceous material; some medium-gray siltstone at 4473 to 4488' and at 4581 to 4627'
4627	- 5157	530	Siltstone, medium- to medium dark gray; shale, dark-gray to grayish-black; a large amount of grayish-black, shaly and medium dark gray dolomitic siltstone at 4904 to 4944' and 5040 to 5065'
5157	- 5863	706	Siltstone and shale, medium dark to dark-gray, some grayish-black, small amounts are dolomitic, a moderate to large amount of grayish-black to black at 5402 to 5494'; much of the siltstone has an olive cast
5863	- 5925	62	Shale and some siltstone, dark-gray to grayish-black, some grayish-black to black, some medium dark gray, some of the siltstone is slightly dolomitic

(Continued on p. 9)

Top. Bottom. Thickness.

5925	- 6194	269	Shale and siltstone, dark-gray to medium dark gray, some grayish-black in the upper part, mostly dark-gray in the lower part, some grayish-black at the bottom
6194	- 6214	20	Shale, dark-gray to grayish-black, some grayish-black to black, slightly pyritic, calcareous in part
6214	- 6314	100	Shale, grayish-black to black (somewhat carbonaceous), some medium dark to dark-gray (Genesee?)
6314	- 6440	126	Shale, dark-gray and grayish-black to black, calcareous and dolomitic in part (6425' corrected to 6400', depth correction? This interval is actually 25 feet thicker than indicated by figures in the left column)
6440	- 6455	15	Shale, black, highly carbonaceous, "coaly"; a very large amount of grayish-black shale, calcareous in part; traces of vein calcite at the top and trace of dark-brown metabentonite at the bottom
6455	- 6678	223	Shale, dark-gray to black, carbonaceous, highly slickensided, calcareous in part, somewhat pyritic; mostly grayish-black to black at 6587 to 6616' and 6655 to 6678'
6678	- 6983	305	Shale, grayish-black to black, moderately to highly carbonaceous, calcareous in part, pyritic in part, slickensided
6983	- 7011	28	Limestone, olive-gray to medium dark gray, very shaly
7011	- 7034	23	Shale, grayish-black to black, moderately to highly carbonaceous, calcareous, pyritic in part, some of the shale is slickensided
7034	- 7039	5	Limestone, olive-gray, shaly to a dark-gray, highly carbonaceous shale
7039	- 7080	41	Shale, grayish-black to black, moderately to highly carbonaceous, calcareous, pyritic in part; some medium dark to dark-gray shale (calcareous in part)
7080	- 7123	43	Shale, black, very highly carbonaceous, much of the shale is "coaly" and slickensided, somewhat pyritic; calcareous; a large amount of white vein calcite
HUNNERSVILLE CHERT, 149 FEET			
7123	- 7136	13	Shale, black, highly calcareous to a grayish-black shaly limestone, the shale is highly carbonaceous to coaly at the top, somewhat pyritic; a moderate amount of medium-gray to brownish-black, very highly micaceous siltstone and shale (metabentonite) at the top, some in the lower part (cavings?)
7136	- 7139	3	No sample
7139	- 7140	1	Sandstone, very light to light-gray, somewhat calcareous, mostly chalcedonic chert grains
7140	- 7141	1	Chert, mottled white to light-gray and grayish-black to black (very shaly), somewhat calcareous
7141	- 7142	1	Sandstone, very light gray, some grayish-black, mostly chert
7142	- 7149	7	Chert, very light to light-gray, some grayish-black (very shaly), slightly calcareous, some medium-gray in the lower part
7149	- 7158	9	Chert, mottled light- to medium-gray and grayish-black (very shaly), somewhat calcareous; most of the chert is silt size (detrital?)
7158	- 7167	9	Shale, (highly silicified) to chert (shaly), grayish-black, some dark-gray, some light- to medium-gray in the middle to a large amount at the bottom, somewhat calcareous and dolomitic
7167	- 7171	4	Chert to siltstone, light-gray, calcareous, somewhat dolomitic
7171	- 7174	3	Chert, mottled light-gray and grayish-black (very shaly), silty (glaucanitic) to a greenish-gray and medium-gray, highly glaucanitic siltstone, somewhat dolomitic

Top.	Bottom.	Thickness.	
7174	- 7210	36	Siltstone to silty shale, dark-gray to grayish-black, some black at the top, highly glauconitic, silicified in part, somewhat dolomitic, very cherty at 7199 to 7201'
7210	- 7216	6	Siltstone to chert, medium dark gray to grayish-black, slightly dolomitic, spicular in part
7216	- 7238	22	Chert, medium- to dark-gray, shaly, with some grayish-black silicified shale in the upper and middle parts
7238	- 7254	16	Chert, dark-gray to grayish-black, very shaly, slightly calcareous, highly glauconitic at 7246 to 7252', calcareous at the bottom
7254	- 7263	9	Chert to silicified shale, medium dark gray to dark-gray, highly calcareous
7263	- 7266	3	Chert, light to medium dark gray, some grayish-black (very shaly to shale) in the upper part, calcareous, somewhat dolomitic
7266	- 7269	3	Chert to silicified shale, dark-gray to grayish-black, highly calcareous, glauconitic
7269	- 7271	2	Limestone (very cherty) to chert (calcareous), dark-gray, some medium-gray, shaly
7271	- 7272	1	Sandstone, medium- to dark-gray, very fine to medium-grained, very shaly, calcareous
			ORISKANY SANDSTONE, 90 FEET
7272	- 7273	1	Sandstone, medium-gray, fine- to medium-grained, somewhat shaly, calcareous
7273	- 7282	9	Sandstone, very light gray, fine- to medium-grained, subrounded to rounded, calcareous
7282	- 7285	3	Sandstone, very light gray, very fine to fine-grained, calcareous, very fine grained and highly calcareous at the bottom
7285	- 7288	3	Sandstone, very light to light-gray, very fine to medium-grained, calcareous
7288	- 7292	4	Sandstone, very light gray, fine- to coarse-grained, some very coarse grains in the upper part, rounded to well-rounded, highly calcareous
7292	- 7296	4	Sandstone, very light to light-gray, very fine to fine-grained, mostly very fine at the top and bottom, subrounded to rounded, very highly calcareous
7296	- 7302	6	Sandstone, very light gray, very fine to medium-grained, subrounded to rounded, calcareous, very highly calcareous at the top
7302	- 7321	19	Sandstone, very light to light-gray, very fine to fine-grained, subrounded to rounded, fine-grained at the top; at 7306 to 7308', 7317 to 7319', very fine at 7305 to 7306', somewhat calcareous; calcareous at the bottom
7321	- 7323	2	Sandstone, light-gray, very fine to medium-grained, subrounded to well-rounded, somewhat calcareous
7323	- 7354	31	Sandstone, very light to light-gray, very fine to fine-grained, some medium grains, calcareous, small amount of dark shaly material, some silty grayish-black material at the bottom
7354	- 7356	2	Siltstone to sandstone (very fine), medium- to dark-gray (with grayish-black, shaly streaks), much interstitial dark material (shaly), moderately calcareous
7356	- 7362	6	Sandstone, light- to medium-gray, very fine to fine-grained, very fine to medium-grained at the top, very fine to medium-grained with some coarse grains at 7360 to 7361', subrounded to rounded, the larger grains are well-rounded, moderately to highly calcareous, some dark (shaly) material

(Continued on p. 11)

Top. Bottom. Thickness.

## HELLERSBERG FORMATION, 86+ FEET

7362 - 7374	12	Sandstone, light-gray, very fine grained, highly calcareous, very highly calcareous and somewhat shaly at 7367 to 7370', highly to very highly calcareous in the lower part
7374 - 7377	3	Limestone, medium-gray with light-gray spots, very sandy (very fine), a little dark (shaly) material
7377 - 7382	5	Sandstone, light- to medium-gray, very fine grained, very highly calcareous, some dark (shaly) material
7382 - 7384	2	Limestone, medium- to dark-gray with light-gray spots, very sandy (very fine), cherty
7384 - 7390	6	Sandstone, medium-gray, some dark-gray (shaly) and some chert at the top, very fine grained, silty, very highly calcareous with some sandy limestone
7390 - 7399	9	Limestone, dark-gray with some medium-gray, very sandy and silty to a very highly calcareous, silty sandstone at the top, shaly, cherty, and lighter in color at the bottom.
7399 - 7409	10	Limestone, (very sandy and silty, very shaly) to a highly calcareous shale and silty sandstone, grayish-black with medium-gray spots, highly fossiliferous
7409 - 7417	8	Limestone, mottled light- and dark-gray, very sandy, very fine to medium-grained (well-rounded), somewhat cherty and somewhat shaly
7417 - 7424	7	Limestone, grayish-black with some medium-gray in the upper part to medium- and dark-gray in the lower part, very silty, somewhat cherty and somewhat shaly, shaly at the top
7424 - 7427	3	Limestone, light- to medium dark gray, very sandy (fine- to medium-grained, well-rounded), somewhat cherty
7427 - 7434	7	Limestone (very sandy) to sandstone (very fine, highly calcareous) light- to medium dark gray, some shaly (dark) material at the bottom
7434 - 7437	3	Limestone (very silty, sandy) to calcareous chert, medium- to dark-gray, most of the sand is fine to medium and well-rounded
7437 - 7443	6	Limestone (sandy) to sandstone (very fine, highly calcareous), mostly medium dark gray, slightly cherty, cherty at the bottom
7443 - 7446	3	Limestone (very sandy, very fine) to shale (calcareous) and siltstone (highly calcareous), dark-gray to grayish-black, some medium-gray, very cherty
7446 - 7448	2	Limestone, medium- to dark-gray, some grayish-black (shaly), very silty and very cherty
7448		Total depth