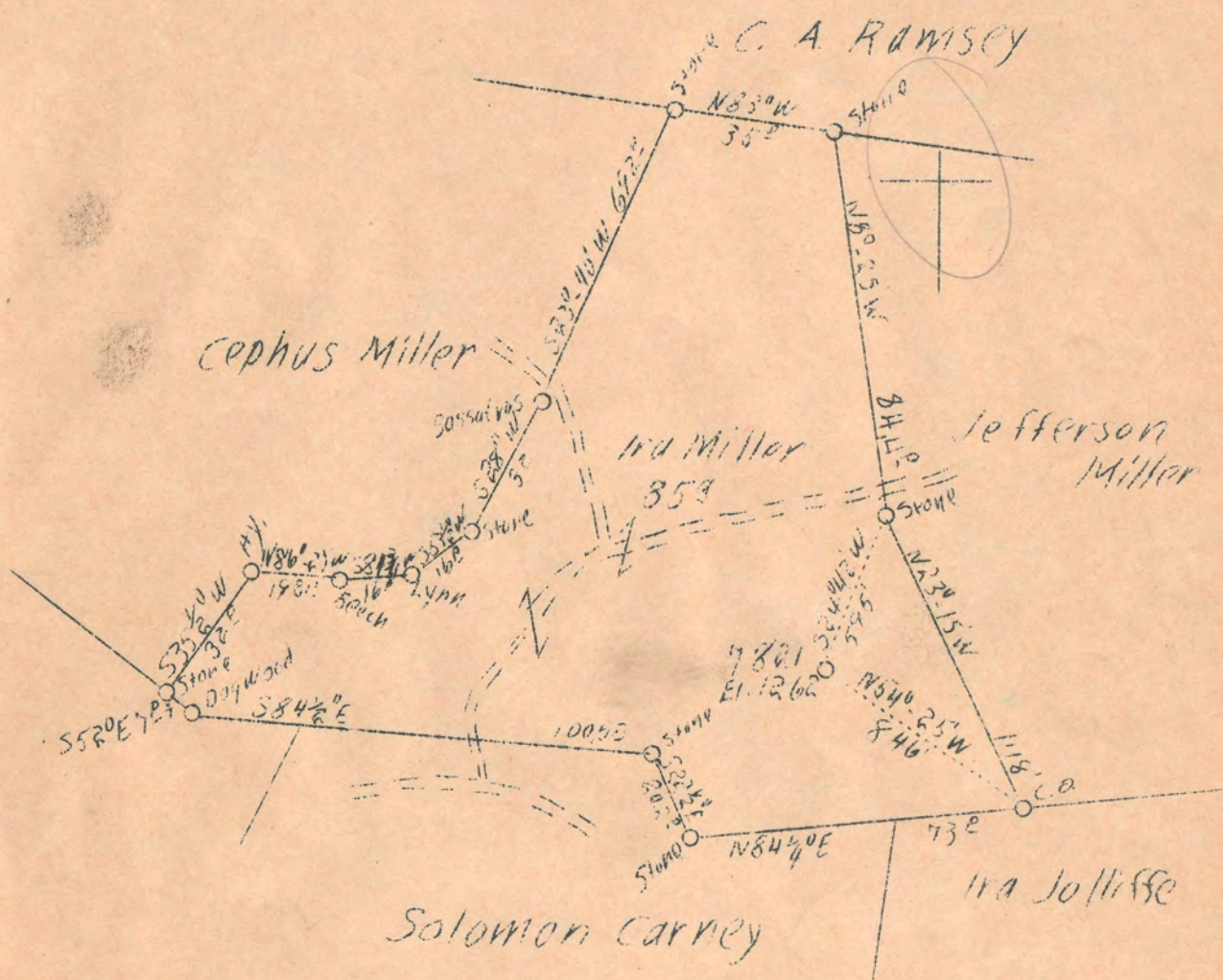


M

1 2 3

LATITUDE 39° 45'

LONGITUDE 80° 35'



abd Feb. 49

3.76
3.8 S
2.0 W

New location

Company Hope Natural Gas Co.
 Address Clarksburg, W.Va.
 Farm Estel Miller
 Tract Acres 85 Lease No. 46911
 Well (Farm) No. 1 Serial No. 7821
 Elevation (Spirit Level) 1262
 Quadrangle Littleton N.C.
 County Wetzel District Center
 Engineer W.M. Bowers
 Engineer's Registration No. 900
 File No. Drawing No.
 Date May 10, 1938 Scale 1"=40 P.

STATE OF WEST VIRGINIA
 Department of Mines
 OIL AND GAS DIVISION
 CHARLESTON

WELL LOCATION MAP
 File No. WOT 181

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.

6-0 36

WEST VIRGINIA DEPARTMENT OF MINES

OIL & GAS DIVISION

WELL RECORD

Permit No. Wet-181		Gas Well		
Littleton Quad.		CASING & TUBING		
Company	Hope Natural Gas Co.	13	156	pulled
Address	Clarksburg, W. Va.	10	1307	1307
Farm	Estel Miller ACRES 85	8-1/4	2087	2087
Location	Laurel Run	6-5/8	2301	2301
Well No.	7821 ELEV. 1262			
District	Center - Wetzel County	Not cemented		
Surface	Estel Miller, Silver Hill, W. Va.			
Mineral	-	COAL ENCOUNTERED:		
Drilling commenced	Aug. 4, 1938	Feet	Inches	
Drilling completed	Dec. 28, 1938	521	36	
Date shot	1-4-39 - Depth 2391-2409	735	60	
Open Flow	-	790	60	
Volume	Not available	1015	60	
Rock Pressure	-	1130	60	
Fresh Water	100			

Formation	Color	HT	Top	Base	Result	Formation	Color	HT	Top	Base	Result
Surface			0	10		Red Rock			1265	1300	
Sand & Slate		h	10	25		Slate			1300	1320	
Slate	blue	s	25	30		Red Rock			1320	1335	
Blue stone		h	30	40		Slate			1335	1350	
Grey stone		h	40	45		Red Rock			1350	1360	
Lime stone		h	45	130	W 100	Slate			1360	1400	
Sand		s	130	150		Red Rock			1400	1420	
Slate			150	245		Slate			1420	1445	
Red Rock			245	260		Lime			1445	1460	
Slate			260	305		Slate	light		1460	1465	
Red Rock			305	320		Slate	dark		1465	1505	
Sand		s	320	330		Little Dunkard Sand			1505	1570	
Slate			330	355		Slate			1570	1615	
Red Rock			355	370		Pink Rock			1615	1625	
Slate			370	521		Slate			1625	1635	1670
Coal			521	523		Big Dunkard Sand			1635	1674	1670-1675
Lime			523	555		Slate			1674	1690	Upper part (oil)
Slate			555	575		Gas Sand			1690	1725	1715
Lime			575	590		Slate			1725	1730	
Slate			590	605		Lime		h	1730	1775	
Gritty Lime			605	625		Salt Sand			1775	1845	
Lime			625	670		Slate			1845	1895	
Slate			670	685		Second Salt Sand			1895	1915	
Coal			685	735		Slate			1915	1940	
Gritty Lime			735	740		Lime		h	1940	1965	
Sand			740	770		Slate			1965	2032	
Coal	Waynesville		770	790		Sand		h	2032	2052	
Slate			790	795		Slate			2052	2060	
Lime			795	810		Sand		h	2060	2105	
Slate			810	815		Slate			2105	2145	
Slate			815	840		Maxon Sand			2145	2253	Sm. oil
Red Rock			840	850		Pencil Cave			2253	2260	2240-47
Lime			850	865		Big Lime			2260	2320	
Slate			865	875		Big Injun sand			2320	2540	G 2397
Lime			875	915		Slate			2540	2590	
Red Rock			915	935		Lime			2590	2600	
Lime			935	1015		Slate			2600	2700	
Coal	Seawater		1015	1020		Gritty Shells			2700	2771	
Lime			1020	1130		Lime		h	2771	2800	
Pittsburgh Coal			1130	1135		Slate			2800	2885	
Lime			1135	1145		Fifty Foot Sand			2885	2930	(Broken)
Slate			1145	1150		Slate			2930	2945	
Red Rock			1150	1155		Lime		h	2945	2980	
Lime			1155	1160		Slate		s	2980	2989	
Slate			1160	1180		Pink Rock			2989	3000	
Pink Rock			1180	1185		Slate			3000	3080	
Lime			1185	1205		Gritty Shells 30'	S		3080	3130	
Sand			1205	1217		Slate stray			3130	3145	
Red Rock			1217	1240		Sand (Gordon Sand)	h		3145	3155	
Sand			1240	1285		Slate			3155	3165	
						Sand (Gordon Sand)	h		3165	3170	
						Slate			3170	3205	
						Fourth sand			3205	3209	
						Total Depth			3210		

2330
2260
70
1262
1130
130

WEST VIRGINIA DEPARTMENT OF MINES

OIL & GAS DIVISION

W E L L R E C O R D

Permit No. Wet-181

Dry hole

Littleton Quad.

CASING & TUBING

Company	Hope Natural Gas Co.	13	156	Pulled
Address	Clarksburg, W. Va.	10	1307	1307
Farm	Estel Miller ACRES 85	8-1/4	2087	2087
Location	Laurel Run	6-5/8	2301	2301
Well No.	7821 ELEV. 1262			
District	Center - Wetzel County			Not cemented
Surface	Estel Miller, Silver Hill, W. Va.			
Mineral	-			COAL ENCOUNTERED:
Drilling commenced	8-4-38	521 ft.	24 in.	
Drilling completed	12-28-38	735 "	60 "	
Date shot	1-4-39 - depth 2391-2409	790 "	60 "	
Volume	Not available	1015	60	
Rock Pressure	Not enough to keep	1130	60	
Fresh Water	100			

Formation Color ^{Hor} S TOP Base Result Formation Color ^{Hor} S TOP Base Result

Surface			10						
Sand & Slate		10	25						
Blue Stone		30	40						
Grey Stone		40	45						
Lime Stone		45	130	W-100					
Sand		130	150						
Slate		150	245						
Red Rock		245	260						
Slate		260	305						
Red Rock		305	320						
Sand		320	330						
Slate		330	355						
Red Rock		355	370						
Slate		370	521						
Coal		521	523						
Coal		735	740						
Coal		1015	1020						
Pittsbrgh Coal		1130	1135						
Sand		1205	1217						
Sand		1240	1265						
Little Dunkard Sand		1505	1570						
Big Dunkard Sand		1635	1674						
Gas Sand		1690	1725						
Salt Sand		1775	1845						
Second Salt Sand		1895	1915						
Sand		2032	2052						
Sand		2060	2105						
Maxon Sand		2145	2253	Small oil 2240-2247					
Big Lime		2260	2320						
Big Injun Sand		2320	2540	Small gas 2397	Blew out				
Fifty Foot Sand		2885	2930						
Thirty Foot Sand		3080	3130						
Gordon Stray		3145	3155						
Gordon Sand		3165	3170						
Total Depth			3210						

2260
 120

 2380
 1262

 1117

ESTEL MILLER NO. 7821 WELL.

Center District, Wetzel County, W. Va.

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

On Laurel Run, 1.95 mi. W. of 80° 35' and 3.77 mi. S. of 38° 45' - NC -
Littleton Quadrangle; 5.4 mi. W. of Littleton.

Permit, Wet-181.

Elevation, 1262' L.

Drilling commenced August 4, 1938; completed, December 28, 1938.

Shot January 4, 1939, at 2391 to 2409'.

Volume, not available.

Fresh water at 100'.

13" casing, 156' (pulled); 10", 1307'; 8½", 2087'; 6⅝", 2301'.

Record by Martens from sample examination July 27, 1940.

Top. Bottom. Thickness.

DUNKARD GROUP, 790 FEET.

0 -	5	5	Loam, brown
5 -	15	10	Clay, yellow
15 -	20	5	Clay, gray, with limestone nodules
20 -	35	15	Sandstone, gray, fine, micaceous; with considerable soft gray shale and some limestone
35 -	45	10	Shale, red and gray, soft, calcareous
45 -	65	20	Sandstone, greenish-gray, very fine, micaceous
65 -	90	25	Clay, brown, gray, yellow, etc., with abundant limestone nodules
90 -	105	15	Sandstone, light grayish-green, micaceous, and calcareous
105 -	115	10	Limestone, brown, very impure
115 -	130	15	No sample
130 -	155	25	Sandstone, grayish-green, fine, micaceous
155 -	170	15	Shale, gray, green, and red; with considerable amount of gray to green siltstone and fine sandstone
170 -	175	5	Sandstone, very fine, gray, micaceous, calcareous
175 -	190	15	Shale, gray and green; some soft and clayey and some hard and silty; contains limestone nodules
190 -	205	15	Limestone, brown, clayey; most of the interval may be soft shale or clay with abundant limestone nodules
205 -	225	20	Shale and siltstone, gray, calcareous; some of shale is soft and clay-like
225 -	235	10	Clay, red
235 -	240	5	Sandstone, green, fine
240 -	250	10	Sandstone, light-green, very fine; and red, green, and yellow soft shale
250 -	285	35	Sandstone, light-green, fine to very fine, micaceous
285 -	315	30	Clay and soft shale, red, calcareous; samples also contain some yellow clay and gray and green shale
315 -	330	15	Sandstone, gray, medium-grained
330 -	335	5	Clay, red and yellow, calcareous
335 -	340	5	Limestone, gray, clayey
340 -	345	5	Shale, gray and green, soft, calcareous
345 -	365	20	Clay, red, with small limestone nodules
365 -	390	25	Shale and siltstone, gray and green, calcareous; some of the shale is very soft and clay-like
390 -	410	20	Shale, gray and green, partly calcareous
410 -	460	50	Shale and siltstone, gray and green; samples also contain a little red and yellow clay and some limestone nodules, perhaps cavings

(OVER)

Top.	Bottom.	Thickness..	
460	- 470	10	Sandstone, gray, fine
470	- 480	10	Shale, gray, mostly soft and fine-textured
480	- 495	15	Siltstone, gray, with considerable amount of shale and a little limestone
495	- 521	26	Shale, greenish-gray; fine and soft at top, becoming hard and silty toward bottom
521	- 523	2	Coal
523	- 540	17	Shale, gray, soft, mostly calcareous; some limestone near top
540	- 555	15	Clay, gray, with very small limestone nodules; lighter and more uniform in color than last and shows no lamination
555	- 570	15	Siltstone, gray, with smaller amounts of shale and limestone
570	- 590	20	Shale, gray, soft, clay-like; with considerable amount of limestone
590	- 605	15	Siltstone, gray, calcareous; with much light-brown limestone
605	- 660	55	Shale and siltstone, gray to grayish-green, with some calcareous material throughout
660	- 685	25	Shale, black, with some thin streaks of coal
685	- 700	15	Clay and soft shale, gray to green; with some limestone
700	- 735	35	Siltstone, gray, partly calcareous; samples also contain some shale and limestone
735	- 740	5	Coal
740	- 765	25	Sandstone, gray, very fine, micaceous; with considerable amount of brown impure limestone
765	- 790	25	Sandstone, light-gray, fine; contains some mica, chlorite, and kaolin (Waynesburg Sandstone)
MONONGAHELA FORMATION, 345 FEET.			
790	- 895	5	Coal, black, partly shaly (Waynesburg Coal)
795	- 820	25	Shale and siltstone, gray
820	- 840	20	Shale, dark-gray, mostly very fine; contains some highly calcareous material, of which there is more toward bottom
840	- 850	10	Shale, red, soft
850	- 855	5	Clay, gray, with small limestone nodules
855	- 885	30	Siltstone, greenish-gray, with varying amounts of gray clay and shale
885	- 890	5	Shale, gray and red, soft, calcareous
890	- 895	5	Limestone, gray; and red and gray shale
895	- 900	5	Shale, grayish-green, soft
900	- 905	5	Sandstone, grayish-green, very fine
905	- 935	30	Shale, red; top half is highly calcareous, mixed with gray clay and not much laminated; bottom half only slightly calcareous, distinctly laminated and red is mixed with green
935	- 950	15	Shale, grayish-green, silty, micaceous
950	- 990	40	Limestone, brownish-gray, fine-textured
990	- 1000	10	Shale, gray; with considerable amount of limestone
1000	- 1015	15	Limestone, brownish-gray
1015	- 1020	5	Coal (Sewickley Coal?)
1020	- 1035	15	Limestone, gray to brownish, with large amount of gray to green clay and shale
1035	- 1070	35	Limestone, gray; large proportion of shale and siltstone from 1060 to 1070'

Top.	Bottom.	Thickness.		
1070	- 1075	5	Shale, grayish-green, silty	
1075	- 1095	20	Limestone, gray; with considerable soft gray and green shale	
1095	- 1105	10	Limestone, gray, 50%; soft gray and green shale, 50%	
1105	- 1120	15	Siltstone, dark-gray, shaly, micaceous; with some gray clay and limestone	
1120	- 1130	10	No sample; reported as "lime"	
- 1130	- 1135	5	Coal (Pittsburgh Coal)	
CONEMAUGH FORMATION, 535 FEET.				
- 1135	- 1145	10	Limestone, gray, 50%; gray clay and soft shale, 50%	
1145	- 1150	5	Shale, gray	
1150	- 1165	15	Shale, red, brown, and gray, calcareous	
1165	- 1185	20	Siltstone, grayish-green, shaly	
1185	- 1190	5	Shale, red and gray, soft, calcareous	
1190	- 1215	25	Siltstone and shale, grayish-green; samples also contain some soft red shale and a little limestone and sandstone	
1215	- 1240	25	Shale, red and gray, soft, calcareous; samples also contain considerable amounts of fine- to medium-grained light-green sandstone	
1240	- 1265	25	Sandstone, white to green, fine- to medium-grained; samples also contain large amounts of clay and soft shale, mostly red	
1265	- 1305	40	Clay, red, yellow, and gray, soft, with small limestone modules; mostly samples also contain some green shale	
1305	- 1330	25	Shale, gray and green, soft; with up to 20% of light-gray limestone	
1330	- 1390	60	Shale, gray, green, and red; with 10 to 30% of light-gray limestone	
1390	- 1400	10	Sandstone, grayish-green, fine, slightly calcareous	
1400	- 1450	50	Clay, red and gray, calcareous	
1450	- 1465	15	Sandstone, light grayish-green, fine	
1465	- 1470	5	Siltstone, light-gray, with siderite spherulites	
1470	- 1485	15	Shale, dark- and light-gray, with streaks of fine sandstone	
1485	- 1500	15	Clay, light-gray, with siderite spherulites	
1500	- 1510	10	Shale, green and red; with much light-gray clay like that above	
1510	- 1555	45	Sandstone, light-gray, fine- to medium-grained; contains some mica, kaolin, and chlorite and in bottom 15 feet some dark shaly material	
1555	- 1565	10	Shale, green, red, gray, and yellow; soft and clay-like	
???	1570	- 1605	35	Shale, dark-gray, very silty at top, finer toward bottom; a little pyritic and carbonaceous limestone in bottom 10 feet
1605	- 1620	15	Clay, light-gray to medium-gray, partly calcareous	
1620	- 1635	15	Clay and soft shale, red, gray, green, and yellow; many siderite spherulites in gray part	
1635	- 1670	35	Shale, green, with some red and gray, and a few loose grains of sand; this interval, is described as "Big Dunkard Sand" but samples show very little sand; the seven samples from this interval seem to be all alike; they are small samples and contain a large proportion of mud	

(OVER)

Top. Bottom. Thickness.

ALLEGHENY AND POTTSVILLE FORMATIONS, 555 FEET (?)

Top.	Bottom.	Thickness.	
1670	1675	5	Coal and dark-gray shale (Upper Freeport Coal)
1675	1690	15	Shale, dark-gray; with some coal
1690	1715	25	Sandstone, gray, with brown and green specks, mostly fine-grained
1715	1730	15	Shale, dark-gray, micaceous
1730	1735	5	Limestone, dark-brown, very fine textured
1735	1755	20	Siltstone, gray; with some limestone as above
1755	1810	55	Sandstone, white, medium-grained; contains a very little mica, chlorite, and kaolin
1810	1815	5	Shale and siltstone, gray (actual thickness perhaps less than 5 feet)
1815	1845	30	Sandstone, white, with some rusty stain, medium- to coarse-grained
1845	1870	25	Shale and siltstone, gray, carbonaceous; samples also contain much sandstone
1870	1895	25	Shale and siltstone, gray
1895	1915	20	Sandstone, white, medium-grained, nearly all quartz
1915	1920	5	Shale, black, with a little impure coal
1920	1940	20	Shale, light-gray, soft, with many siderite spherulites
1940	1945	5	Sandstone, gray, fine
1945	1996	41	Shale, medium- to dark-gray, partly silty; small amounts of coal in some samples
1996	2032	36	Siltstone, dark-gray, shaly
2032	2047	15	Sandstone, light-gray; top 3 feet very coarse
2047	2054	7	Siltstone, gray
2054	2073	19	Sandstone, gray, very fine
2073	2105	32	Sandstone, light-gray, medium- to fine-grained, slightly calcareous
2105	2130	25	Shale, dark-gray, mostly silty
2130	2140	10	No sample
2140	2160	20	Sandstone, light-gray, very fine, becoming almost a siltstone at top; contains some dark-gray shale and siltstone throughout
2160	2205	45	Sandstone, white, fine; nearly all quartz, but contains a little chlorite, very small specks of pyrite, and a little kaolin or similar material
2205	2220	15	Siltstone, gray, shaly, about 50%; and white fine sandstone about 50%
2220	2247	27	Sandstone, white, fine to very fine, nearly all quartz, very slightly calcareous (smell of oil, 2240-2247')
			Depth was apparently corrected from 2247 to 2225' but possibly a sample or two is missing and the exact correction is uncertain
			GREENBRIER LIMESTONE, 120 FEET.
2225	2280	55	Limestone, light-gray, slightly brownish when wet; a little gray and green shale in sample from 2245 to 2250'
2280	2320	40	Limestone, brownish-gray, darker than that above
2320	2345	25	Limestone, gray, very sandy; larger sand grains fairly well rounded (Loyalhanna Limestone)

(CONTINUED ON PAGE 5)

Top. Bottom. Thickness.

LOWER MISSISSIPPIAN AND UPPER DEVONIAN,
865+ FEET.

Top.	Bottom.	Thickness.	
2345	2360	15	Shale, gray, with about equal amount of fine, light-gray sandstone; samples are strongly calcareous, but this seems to be due mostly to limestone from above
2360	2475	115	Sandstone, nearly white, medium- to fine-grained; considerable yellow stain on samples below 2395'; (gas at 2397')
2475	2530	55	Sandstone, light-gray, fine, with streaks of darker gray siltstone and silty shale; some of sandstone fragments contain carbonaceous material resembling coal
2530	2700	170	Shale, gray, interstratified with varying amounts of siltstone of a little lighter color than the shale; some samples toward the bottom are more than half siltstone and those near the top about three-fourths shale
2700	2740	40	Sandstone, gray, very fine, shaly; with rather small amount of darker gray shale; most of the sandstone is so fine as to almost be a siltstone
2740	2770	30	Siltstone, gray, shaly
2770	2835	65	Shale, gray, silty, micaceous, pyritic; a little darker than the siltstone above
2835	2950	115	No samples (possibly Berea Sandstone is in this interval)
2950	3090	140	Shale, gray; with thin streaks of gray to green siltstone mostly in lower part; between 3025 and 3090' there are a very few scattered fragments of red shale
3090	3145	55	Sandstone, grayish-green, poorly sorted, slightly calcareous; has very coarse, rounded quartz grains and small pebbles embedded in fine matrix; samples also contain considerable gray shale and gray to green siltstone
3145	3155	10	Sandstone, light-gray, with a few green and brown specks; mostly fine, but is poorly sorted and contains a few medium to coarse grains; slightly calcareous
3155	3205	50	Shale, gray; with small amount of fine to very fine, light-gray sandstone
3205	3210	5	Sandstone, light-gray, very fine, slightly calcareous; the last sample, labelled 3200 to 3210' is about half shale and half sandstone; the driller's record gives "Fourth Sand" 3205 to 3209", so the last foot is presumably in shale
	3210		Total depth

B. 7. 2. 1. 1. 1.

Keen

Squaw

Hampshire

Garden

Fourth