

Operator: Clinchfield Coal Co.
 Farm: Virginia Coal and Iron Co.
 Well No.: 217
 Index No.: 18
 Location: Wise County
 13,500' S of 37°00'
 10,250' W of 82°45'
 Elevation: 2049.5'
 Total Depth: 5364'

Remarks: Elevation and location of well site with reference to: coal geology along the Callahan Creek Basin; measured sections nos. 46, 47, and 57; core at Meadow Fork, 1 1/2 miles northeast; and Core at Possum Trot, 1/2 mile southeast; indicate that well located about 200' above the Imboden coal, and about 800' above the Dorchester coal.

<u>Formation</u>	<u>Top</u>	<u>Bottom</u>	<u>Thickness</u>
Pennsylvanian System			
Post Lee Formation "in at surface"		1455	1455'
		Imboden coal? 245-250	
		Dorchester coal 779-781	
		Gladeville sand interval 817-889	72'
		Kennedy coal horizon at 1400'	
		War Creek coal 2482-2484	
Lee Formation	1455	2905	1450'
		quartzose sand 1455-1552	97'
		quartzose sand 1562-1590	28'
		quartzose sand 1594-1697	103'
		quartzose sand 1865-1985	120'
		quartzose sand 2035-2153	118'
		quartzose sand 2202-2258	56'
		quartzose sand 2272-2328	56'
		quartzose sand 2356-2388	32'
		quartzose sand 2544-2905	361'
		total quartzose sand	971'

Pocahontas Formation "absent"

Correlations by Marshall Miller, 1970-74, VDMR.

Mississippian System

Pride Shale	2905	3060	155'
Princeton Interval	3060	3126	66'
Little Stone Gap Mem.	3126	3161	35'
Stony Gap Sand	3345	3485	72'
Greenbrier Formation	3785	4255	470'
Maccrady	4255		

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Remarks: Well has been sufficiently logged by John Wilson, VDMR, 1962.

The geologic summary below was prepared by Marshall S. Miller to identify and describe the Lee quartzose sand members.

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>
0-1455	1455'	See Wilson's log. This interval was observed by microscope, while reviewing the geologic log of Wilson. No "consistent" quartzose sands were observed throughout this interval, and the coal horizons were well identified by Wilson.
1455-1515	60'	Sandstone, white, quartzose, fine grained, subrounded, well sorted, with small amount of calcareous clay and silt matrix material, rare dark rock fragments, very rare muscovite, 90% quartz, 5% matrix, 5% rock fragments, less than 1% accessory minerals
1515-1552	37'	Sandstone, white, quartzose, medium to coarse grained, subround to angular, moderately sorted, rare dark rock fragments, little or no matrix material, 95% quartz
1552-1562	10'	Siltstone, dark gray, hard, brittle, finely micaceous
1562-1590	28'	Sandstone, white, quartzose, fine to medium grained, subround, moderately well sorted, rare dark rock fragments, small amount of silt matrix material, 90 to 95% quartz
1590-1594	4'	Siltstone, dark gray to black, hard, brittle, micaceous and carbonaceous

1594-1608	14'	Sandstone, as in 1562-1590
1608-1668	60'	Sandstone, white, quartzose, medium to coarse grained, subangular to subround, poorly sorted, rare dark rock fragments and small amount of calcareous clay silt matrix, 90 to 95% quartz
1668-1697	29'	Sandstone as in 1608-1668, and conglomeratic
1697-1722	25'	Sandstone, light gray, fine to medium grained, subangular, poorly sorted, micaceous, with abundant clay-silt matrix material, dark rock and mineral fragments, rare pyrite, about 65% quartz, 20% matrix, 15% rock and accessory mineral fragments
1722-1745	23'	Siltstone, light gray to black, finely micaceous, locally carbonaceous
1745-1747	2'	Coal, pure to impure, silty in part
1747-1798	51'	Siltstone, as in 1722-1745
1798-1865	67'	Siltstone, black, hard, brittle, locally fissile, slightly calcareous, finely micaceous, locally carbonaceous
1865-1985	120'	Sandstone, white, quartzose, fine to coarse grained but generally medium grained, subrounded, moderately well sorted, rare mica, rare dark rock fragments and carbonaceous material, and small amount of calcareous clay-silt matrix material, 90% quartz, 5% matrix, 5% rock fragments
1985-2013	28'	Siltstone, gray, micaceous, carbonaceous
2013-2035	22'	Sandstone, light gray, fine to medium grained, subround to subangular, moderately sorted, abundant muscovite, biotite, chlorite, carbonaceous material, and other red and dark minerals, calcareous clay-silt matrix material, 70 to 75% quartz

2035-2116	81'	Sandstone, white, quartzose, medium to coarse grained, subround to subangular, moderately sorted, rare muscovite, rare dark rock fragments and carbonaceous material, clay and silt matrix material, 70 to 75% quartz
2116-2153	37'	Sandstone, as in 2035-2116, and conglomeratic
2153-2202	49'	Sandstone, light gray to gray, very fine grained to fine-grained, silty, very micaceous, with abundant muscovite, biotite, chlorite, phlogopite, traces of feldspar, with thin coaly carbonaceous partings throughout, 60% quartz
2202-2224	22'	Sandstone, white, quartzose, mostly medium grained, occasionally fine and coarse grained, subround to subangular, moderately sorted, rare muscovite, and carbonaceous material, rare dark rock fragments, little to no matrix material, 95% quartz
2224-2258	34'	Sandstone, white, quartzose, as in 2202-2224, contains more carbonaceous material and mica, about 90% quartz
2258-2272	14'	Siltstone, dark gray, carbonaceous, contaminated with sand from above
2272-2285	13'	Sandstone, white, quartzose, fine grained, subround to round, well sorted, rare muscovite, carbonaceous material, dark rock fragments, small amount of clay silt matrix material, 90% quartz, 5% matrix, 5% rock and mineral fragments
2285-2328	43'	Sandstone, white, quartzose, fine to medium grained, subround to subangular, moderately sorted, no matrix material, rare dark rock fragments, 95 to 100% quartz
2328-2330	2'	Coal, shaly, impure
2330-2334	4'	Shale, black, carbonaceous

2334-2343	9'	Siltstone, light gray to dark gray, moderately hard, abundant carbonaceous material, finely micaceous
2343-2356	13'	Interbedded; siltstone, dark gray, carbonaceous; and sandstone, fine grained, silty, moderately quartzose
2356-2366	10'	Sandstone, white, quartzose, medium grained, subrounded, moderately sorted, rare dark rock fragments, little to no matrix material 95% quartz
2366-2376	10'	Sandstone, as in 2356-2366 and medium to coarse grained
2376-2388	12'	Sandstone, as in 2366-2376, and conglomeratic
2388-2403	15'	Siltstone, dark gray, hard, carbonaceous
2403-2423	20'	Interbedded; siltstone, as in 2388-2403; and sandstone, light tan, fine grained, silty, moderately quartzose
2423-2450	27'	Siltstone, dark gray, finely micaceous, locally carbonaceous
2450-2452	2'	Coal, pure to impure, silty in part
2452-2465	13'	Siltstone, as in 2423-2450
2465-2470	5'	Coal
2470-2482	12'	Siltstone, as in 2423-2450
2482-2484	2'	Coal
2484-2500	16'	Siltstone, as in 2423-2450
2500-2544	44'	Sandstone, light gray to white, fine grained, silty, moderately quartzose, with minor amount of gray siltstone

2544-2581	37'	Sandstone, white, quartzose, fine to coarse grained, subround to subangular, moderately sorted, little or no matrix material, very rare dark rock fragments, and with scattered conglomeratic quartz pebbles (up to 6 mm) throughout interval, 90 to 95% quartz, 0 to 5% rock fragments, 5% matrix
2581-2598	17'	Sandstone, as in 2544-2581, not conglomeratic
2598-2608	10'	Sandstone, as in 2544-2581, conglomeratic
2608-2618	10'	Sandstone, as in 2544-2581, not conglomeratic
2618-2654	36'	Sandstone, as in 2544-2581, conglomeratic
2654-2700	46'	Sandstone, white, quartzose, mostly medium grained, subrounded, moderately well sorted, little or no matrix material, almost 100% quartz
2700-2759	59'	Sandstone, white, quartzose, medium grained to granular and conglomeratic, subround to subangular, poorly sorted, little or no matrix material, rare rock fragments; 95% quartz, 5% rock fragments and matrix material
2759-2800	41'	Sandstone, as in 2700-2759, not conglomeratic
2800-2867	67'	Sandstone as in 2700-2759
2867-2900	33'	Sandstone, as in 2700-2759, not conglomeratic
2900-2905	5'	Sandstone, as in 2700-2759
		- unconformity -
2905		Shale, dark gray, silty, hard, brittle