

Operator: Clinchfield Coal Company

Farm: Virginia Coal and Iron Co.

Well No.: 216

Location: Wise County

7050' N of 37°00'

11,650' E of 82°40'

Elevation: 2372.3'

Total Depth: 4056'

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

The additions and summary below was prepared by Marshall S.

Miller to identify the Lee quartzose sand members.

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>
915-916	1'	Coal, pure, good vitreous luster, conchoidal fracture
0-919	919'	The well cuttings of this interval, and the geologic log of Wilson were studied and reviewed; no additions, except for the coal interval above, were necessary. No consistent quartzose sand was observed in this interval.
919-965	46'	Sandstone, white, quartzose, fine grained, subrounded, well sorted, moderately cemented with calcareous silica matrix material, rare mica, rare dark rock fragments; about 90% quartz, 5% matrix, 5% rock fragments and accessory minerals
965-970	5'	Siltstone, dark gray, moderately hard, brittle, argillaceous
970-1005	35'	Sandstone, white, quartzose, fine to medium to coarse grained, subangular to subround, moderately to poorly sorted, small amount of clay-silt matrix, scattered dark rock fragments, 90% quartz, 5% matrix, 5% rock fragments

1005-1023	18'	Sandstone, white, quartzose, coarse grained to granular grained and conglomeratic, subangular to subround, poorly sorted, little to no matrix material, secondary quartz overgrowths, rare dark rock fragments, chert, and quartzite, quartz grains occur, clear, milky, and frosted, generally about 95% quartz
1023-1028	5'	No sample
1028-1036	8'	Sandstone as in 1005-1023
1036-1040	4'	No sample
1040-1055	15'	Sandstone, white, quartzose, medium to coarse grained, subrounded, moderately sorted, small amount of clay-silt matrix material, rare dark rock fragments, 90 to 95% quartz
1427-1453	26'	Sandstone, white, quartzose, fine to medium grained, occasionally coarse grained, subangular to subround, moderately to poorly sorted, considerable clay silt matrix material, no accessory minerals, scattered dark rock fragments, around 90% quartz, 10% matrix, less than 1% rock and mineral fragments
1453-1475	22'	Sandstone, white, quartzose, fine to coarse grained to granular and conglomeratic, subangular to subround, poorly sorted, rare dark rock fragment, little or no matrix material, secondary quartz overgrowths, over 95% quartz, less than 5% matrix and rock fragments
1541-1565	24'	Sandstone, white, quartzose, fine to medium grained, subrounded, moderately well sorted, scattered dark rock fragments, rare mica, small amount of clay-silt matrix, about 90% quartz, 5% rock fragments, 5% matrix
1565-1578	13'	Sandstone, white, quartzose, fine to coarse grained, subangular to subround, little or no matrix material, rare dark rock fragments; 95% quartz, 5% rock fragments and matrix material

1578-1616	38'	Sandstone, white, quartzose, fine to coarse grained to granular, subround to subangular, moderately to poorly sorted, little or no matrix material, very rare dark fragments, 95 to 100% quartz
1735-1817	82'	Sandstone, white, quartzose, fine to medium grained, occasionally coarse grained, subround to subangular, moderately sorted, little or no matrix material, rare rock fragments, 90% quartz, 5% rock fragments, 5% matrix
1817-1820	3'	Sandstone, as in 1735-1817, very conglomeratic
1879-1882	3'	Sandstone, white, quartzose, fine to medium grained, subangular to subround, moderately sorted, little or no matrix material, scattered dark rock fragments, 90% quartz
1882-1895	13'	Sandstone, white, quartzose, medium grained to granular grained and conglomeratic, subangular, poorly sorted, rare matrix material, rare dark rock fragments, 95% quartz, quartz occurs very clear and glass like to milky and frosted
1895-1948	53'	Sandstone, white, quartzose, mostly medium grained, occasionally fine grained and coarse grained, subrounded to subangular, moderately well sorted, little or no matrix material, rare dark rock fragments, 95 to 100% quartz
1948-1974	26'	Sandstone, white, quartzose, medium to coarse grained to granular and conglomeratic, subangular to subround, poorly sorted, small amount of calcareous clay-silt matrix, scattered dark rock fragments, rare muscovite; 90% quartz, 5% matrix, 5% rock fragments, less than 1% accessory minerals
2040-2045	5'	Sandstone, white, quartzose, fine to medium grained, subround to subangular, moderately sorted, small amount calcareous clay silt matrix, scattered dark rock fragments, rare mica, 90% quartz, 5% matrix, 5% rock fragments

2045-2053	8'	Sandstone, as in 2040-2045, medium to coarse grained
2053-2060	7'	Sandstone, as in 2045-2053, occasionally granular
2060-2078	18'	Sandstone, as in 2040-2045
2078-2083	5'	Sandstone, white to pink and orange, very fine to medium grained, subangular to subround, moderately to poorly sorted, with abundant red hematite and iron minerals, scattered muscovite, dark rock fragments and carbonaceous partings, calcareous clay silt matrix; 80 to 85% quartz, quickly grades downward to quartzose sand by 2083
2083-2102	19'	Sandstone, white to orange, quartzose, fine grained, subround, well sorted, iron stained throughout, rare dark rock fragments, very rare mica, small amount of clay-silt matrix, 90% quartz
2102-2111	9'	Sandstone, light tan, fine to very fine grained, subrounded, moderately sorted, very silty, with abundant clay-silt matrix material, 80 to 85% quartz
2111-2118	7'	Sandstone, white, quartzose, medium grained to granular, with scattered conglomerate, subround to subangular, moderately sorted, little to no matrix material, rare dark rock fragment, very rare mica, 90 to 95% quartz
2118-2127	9'	Sandstone, as in 2111-2118, fine to medium grained, no conglomerate
2127-2140	13'	Sandstone, as in 2111-2118, medium to coarse grained
2140-2145	5'	Sandstone, white, quartzose, fine to medium grained, subrounded, well sorted, no visible matrix material, very rare dark rock fragments, 95 to 100% quartz

2145-2152	7'	Sandstone, white, quartzose, fine to coarse grained to granular and conglomeratic, subangular to subround, poorly sorted, little or no matrix material, scattered dark rock fragments, 90% quartz
2152-2156	4'	No samples
2156-2207	51'	Sandstone, white, quartzose, fine to coarse grained, subround to subangular, moderately sorted, little to no matrix material, rare dark rock fragments, scattered carbonaceous material, some iron staining
2207-2211	4'	No samples
2211-2226	15'	Sandstone, white, quartzose, fine to coarse grained, subangular to subround, moderately to poorly sorted, little to no matrix material, rare dark rock fragments, 95% quartz
2226-2235	9'	Sandstone, as in 2211-2226, scattered conglomerate
2235-2250	15'	Sandstone as in 2211-2226
2250-2271	21'	Sandstone, white, quartzose, medium grained to granular and conglomeratic, subangular to subround, poorly sorted, with scattered dark rock fragment and carbonaceous material, little to no matrix material, 95% quartz
2271		Red and gray, siltstone, slightly calcareous