

United Producing Company  
 2-3466 Yukon-Pocahontas Coal Co.  
 VDMR #9, Index No. 106  
 Geologic review and summary by Marshall S. Miller

Well has been logged by Bowen and Williamson (USGS) and drafted into the published work of Wilpolt and Marden and unpublished work of Milichi, Robinson, etc. Comparison of all three studies indicate very little agreement. The Norton/Lee contact is placed from a depth of 320' to 581'. The Mississippian-Pennsylvanian contact is placed from 1535' to 2000'. Confusion has resulted from the absence of the Lee quartzose sand members, except the lower basal member, and the presence of the underlying Pocahontas Formation.

No further detailed descriptions are necessary for the most part. However, the samples were reviewed with particular interest in coal horizons and any possible Lee quartzose sands present. All the coals are noted below and the quartzose sands described in detail. The final draft should be made accordingly.

Coal, estimated depth and thickness		
424- 426	2'	Coal, dull, silty, impure (noted by USGS) estimated thickness <i>Jawbont</i>
484- 487	3'	Coal, high luster, pure, concoidal fracture; thickness from drillers log (noted by USGS) <i>Table 2</i>
581 - 592		<i>NOTED IN SAMPLE - JRP</i>
752- 756	4'	Coal very dull, impure, and silty (noted by Bowen and USGS), thickness from drillers log
769- 771	2'	Coal, clean, high luster, blocky fracture (noted by USGS) thickness estimated
750 - 56		<i>NOTED - JRP</i>
852- 856	4'	Coal (noted by Bowen and USGS) thickness from drillers log. Sample bag is missing.
953- 960	7'	Coal, dull to high luster, a good show of coal (noted by Bowen and USGS) thickness from drillers log
962- 979	17" ?	Coal, pure with vitreous luster, blocky and concoidal fracture, occasionally silty (noted by Bowen and USGS) thickness from drillers log
1076-1077	1'	Coal, high luster, blocky fracture (Noted by USGS) estimated thickness

1120-1122	2'	Coal, good luster, irregular fracture (noted by Bowen) thickness from drillers log
1147-1151	4'	Coal, shaly, impure (noted by USGS and Bowen) thickness from drillers log
1214-1218	4'	Coal, high luster with silty and shaly partings (noted by USGS and Bowen) thickness from drillers log
1258-1260	2'	Coal, dull to high luster, shaly (noted by Bowen and USGS) estimated thickness
1280-1283	3'	Coal, dull to high luster, pure to impure with abundant fossil rootlets (noted by Bowen and USGS) estimated thickness
1373-1374	1'	Coal, dull, silty (noted by USGS) estimated thickness
1637-1639	2'	Coal, dull, silty, and bony (noted by USGS and Bowen) estimated thickness
1700-1705	5'	Coal, dull to high luster, irregular fracture. Probably the Pocahontas #3 coal (noted by USGS and Bowen)
1885-1889	4'	Coal, pure with high luster, blocky fracture (Noted by USGS and Bowen) estimated thickness
1899-1901	2'	Coal, like that above

Several of the coal seams noted above were not drafted into the work done by Milichi etc. Also a couple of coal seams were drafted which are not present. The geologic log remains otherwise correctly drafted. The coal seams noted here should be redrafted accordingly.

The bottom 600' of the Pennsylvanian section is summarized below. This interval (1400-2000) would include a basal Lee sand if present and perhaps 300 to 500' of Pocahontas Formation.

1393-1402 9' Interbedded, sandstone and shale about 50% of each, shale, dark gray, micaceous; sandstone, white to light brown to brownish, fine to medium grained, moderately to poorly sorted, subangular to subround, abundant clay and silt material, and inclusions of coal and dark argillaceous material, also coaly laminations. Occasional presence of "clean" white, quartz sands which appear in "clusters". The brownish color in the other sands is probably due to the abundance of carbonaceous material.

1402-1444 42' Sandstone, white mostly, some iron staining present, fine to occasionally medium grained, mostly fine grained, subangular to subround, moderately to well sorted, silica cemented, with local clay or silt material, occasional rounded, dark, argillaceous and carbonaceous material, however sand appears to be over 90% quartz. Interval (1417-1424) picks up considerable amount of clay, silt, muscovite, and dark and green minerals; scattered muscovite continues throughout remainder of interval; also calcareous cement becomes continually more present downward.

100' +  
300'  
VAN  
9721-7 / KERN MTD  
WH, NOT CONCH / BY CORALS  
1444-1463 19'

50'  
19' TOP

This interval which does appear and approach a quartzose nature, is not typical of the basal Lee quartzose member, nowhere does the sand become coarse grained or conglomeratic. ?  
shovels!

Sandstone, white to light gray, subrounded, fine grained, fairly well sorted with continued abundance of scattered muscovite, dark minerals and coal, is much like that sandstone above, but with much less clay and silt material, and only trace of calcareous cementing.

1463-1501	38'	Shale, gray, finely micaceous with occasional red siderite? (ironstone?) and black nodules
1501-1517	16'	Sandstone, white, light gray, fine grained, poorly sorted, subangular, clay and calcareous cement, with abundant dark minerals, muscovite, carbonaceous material, about 70-75% quartz. Poor porosity
*1517-1534	17'	Sandstone, white, quartzose, fine to medium and occasionally coarse grained with grain size increasing downward, mostly subangular, but occasionally rounded, moderately sorted, to poorly sorted, appears loose, with no clay or calcareous cement or material, is more typical of the Lee quartzose sands, is coarse grained to granule 1527-1534
1534-1572	38'	Shale, tan to gray, locally silty, and carbonaceous, with occasional sand stringers (1543-1553)
1572-1637	65'	Sandstone, light gray, gray, fine to medium grained, subangular to subround, poorly sorted, feldspathic, micaceous with abundant clay, silt, chlorite and dark argillaceous material. No porosity
1637-1639	2'	Coal, dull, silty and bony, to high luster with good blocky fracture, estimated thickness
1639-1700	61'	Siltstone and shale, gray, usually micaceous
1700-1705	5'	Coal, is probably the Pocahontas #3 coal, is pure and impure, dull to vitreous luster, irregular fracture
1705-1760	55'	Shale and siltstone, with occasional amount of coaly material

- 1760-1819 59' Sandstone, light gray, gray, light brown, usually very fine grained, poorly sorted, subangular to subround, micaceous, with abundant coaly laminations, brown, green and dark minerals, generally clay cement, about 70% quartzose. No porosity.
- 1819-1885 66' Sandstone, white to light gray, fine grained, poorly sorted, subangular, with scattered muscovite, coal laminations, feldspar, and dark argillaceous material. About 80-85% quartz, clay and silica cement. Poor to fair porosity. \*This interval possibly correlates with a slightly "cleaner" sand to the west and southwest, which causes some concern because of the quartzose appearance in an otherwise non-quartzose interval. A "clean" interval is present from (1871-1877) which appears quartzose; only a small scattered amount of muscovite, feldspar, and some coaly laminations contaminate the sand. About 90% quartz and very little clay or silt material
- 1885-1889 4' Coal pure, with high luster, blocky fracture
- 1889-1893 4' Sandstone, white, approaching medium grained, quartzose, subangular, with rare scattered muscovite
- 1893-1907 14' Sandstone, gray, fine grained, poorly sorted, subangular with abundance clay, silt, and red, dark, and green minerals and reworked coal. Also stringers of light gray shale with abundance (ironstone? or siderite?) nodules. Also possibly another coal seam, 2' thick, (1899-1901?) is present about 15% of interval sample is coal
- 1907-1917 10' Sandstone, like that sand described above but micaceous and no coal is present
- 1917-1937 20' Sandstone, light gray, fine to medium grained, poorly sorted, subangular, with some muscovite, brown, green and dark minerals, some rounded coaly material. Slight porosity. About 75% quartz

1937-2000      63'      Siltstone, light gray, coarse grained, subrounded, slightly micaceous, is locally shaly, grades downward to a gray silty shale.

2000-                      Red, calcareous shale, beginning of the Bluestone

Post Lee Formation	0-1402	1402'
Lee Formation	1402-1534	132'
Pocahontas Formation	1534-2000	466'

Operator: United Producing Co., Inc.  
 Farm: Yukon Pocahontas Coal Co. et al  
 Well No.: 2-1466

Samples for this well were examined by Mr. David Bowen in preparing a Master's thesis entitled "Subsurface Study of the Lee Formation in Buchanan County, Virginia," for the Virginia Polytechnic Institute. A microfilm copy of the thesis, containing a detailed description of the Post-Princeton strata in this well, is available for reference in the Library of the Virginia Division of Mineral Resources.

Formation boundaries stated in this thesis are as follows:

System

Formation

Pennsylvanian

Post-Lee Strata, Undivided	in bottom	0' 558'
Lee Formation	top bottom	558' 2000'

Mississippian

Bluestone Formation	top bottom	2000' 2432'
Princeton Sandstone	top bottom	2432' --