

Operator: United Fuel Gas Company
 Farm: National Shawmut Bank of Boston
 Well No. 8415-T
 Location: Buchanan County
 5900' S. of 37°30' approximate
 4650' W. of 82°00'
 Elevation: 1353.65' Ground
 Total Depth: 5567'
 Drilling Commenced: July 2, 1957
 Well Completed: January 1, 1958
 Result: Gas well

Formation Summary

<u>Formation</u>	<u>Top</u>	<u>Bottom</u>	<u>Thickness</u>
Pennsylvanian System			
Post Lee Formation (in at surface)	609		609'
Drillers log		Dorchester coal 61-63 Gladeville sand interval 63-100 Norton coal horizon at 100' Hagy coal horizon at 230' Splash Dam coal horizon at 320' Lower Banner coal horizon at 420' Kennedy Coal horizon at 520'	
Lee Formation	609	1802	1193'
		quartzose sand 609-685	76'
		quartzose sand 699-787	88'
		conglomeratic 699-708	9'
		conglomeratic 784-787	3'
		quartzose sand 1117-1184	67'
		conglomeratic 1127-1134	7'
		conglomeratic 1155-1184	29'
		quartzose sand 1270-1300	30'
		conglomeratic 1270-1276	6'
		conglomeratic 1295-1300	5'
		War Creek Coal 1430-1432	

quartzose sand 1442-1572	130'
conglomeratic 1471-1480	9'
conglomeratic 1490-1497	7'
conglomeratic 1550-1572	22'
quartzose sand 1597-1654	57'
conglomeratic 1597-1638	41'
quartzose 1684-1722	38'
conglomeratic 1699-1722	23'
quartzose 1736-1802	66'
conglomeratic 1736-1760	24'
conglomeratic 1776-1802	26'
total quartzose sand	642'
total conglomeratic	211'

Mississippian System

Bluestone Formation	1802	2089	287'
Pride Shale	1975	2089	114'
Princeton Interval	2089	2223	134'
*Little Stone Gap	2223	2236	13'
Greenbrier	2847?	3144	297'
Maccrady	3144		

Remarks: Well located approximately 10 to 20' below the Eagle Coal horizon, 230' above the Hagy Coal, 320' above the Splash Dam Coal, 420' above the Lower Banner Coal and 520' above the Kennedy Coal. Referred to measured section 875 of Bulletin 18, and geology on Upper Elk Creek for coal correlations and estimations. Correlations by Marshall S. Miller, 1970-74, VDMR.

UNITED FUEL GAS COMPANY

8415 NATIONAL SHAWMUT BANK OF BOSTON WELL

Buchanan County, Virginia

Location: 1.90 miles west of 81° 55'
 2.93 miles south of 37° 25'
 Ground elevation: 1353.65 Total depth: 5567
 Drilling commenced: July 2, 1957
 Drilling completed: November 11, 1957
 Water: 61-63, HFW
 Gas: 2183-2192, 60 MCF
 Oil: None
 Casing record: 13 3/8 at 39, 10 3/4 at 807, 8 5/8 at 2780
 Depth corrections: None
 Samples examined by David G. Bowen, 1958

POST-LEE FORMATION BEDS (PENNSYLVANIAN) UNDIVIDED

- 0 - 63 No sample
- 63 - 100 Sandstone, light-gray, medium-grained with a few coarse grains, at 96-100 mostly coarse-grained, subangular to subrounded, quartzose, very slightly feldspathic, moderately micaceous and chloritic, moderate amount of green grains and dark grains, at 63-79 moderate amount of coaly material
- 100 - 112 Shale, gray with a little tan, silty, micaceous, hard, slightly calcareous
- 112 - 118 Siltstone, light-gray, quartzose, moderately micaceous
- 118 - 123 Shale, gray, silty, hard, micaceous
- 123 - 130 Shale, same as above; and siltstone, light-gray, quartzose, slightly feldspathic.
- 130 - 137 No sample
- 137 - 143 Sandstone, light-gray, fine-grained, subangular, quartzose, feldspathic, calcareous, moderately micaceous, a few chips are darkly laminated with coaly material
- 143 - 149 Siltstone, gray, quartzose, argillaceous, slightly calcareous micaceous, dirty; some sandstone, gray, slightly calcareous, otherwise same as above

- 149 - 150 Siltstone, same as above; a little coal; a little shale, carbonaceous
- 150 - 157 Shale, gray, silty, silty laminations, micaceous
- 157 - 204 Shale, gray, soft, small amount of scattered pyrite, most is very calcareous and nearly an argillaceous limestone
- 204 - 225 Sandstone, dark-gray, fine-grained, subangular, quartzose, quite argillaceous, moderately micaceous, slightly calcareous, at 204-210 one orange-colored lamination of siderite (?)
- 225 - 237 Sandstone, tan to light-gray, fine- to very fine grained, subangular, quartzose, feldspathic, moderately micaceous, calcareous cement
- 237 - 254 Siltstone, gray, quartzose, argillaceous, slightly micaceous, slightly calcareous
- 254 - 301 Sandstone, white, medium-grained with a few fine grains, at the base a few coarse grains, subangular to subrounded, quartzose, slightly calcareous, micaceous, chloritic, some green grains, at 254-263 a few coal grains, at 280-288 a little included coal
- 301 - 313 Shale, gray, soft
- 313 - 331 Shale, gray, micaceous; and siltstone, gray, quartzose, feldspathic
- 331 - 336 Shale, gray, micaceous; and shale, gray, unctuous, underclay with a coaly film; some sandstone, gray, fine-grained to silt, quartzose, dirty
- 336 - 342 Sandstone, brown, fine-grained, subangular, quartzose, feldspathic, micaceous
- 342 - 395 Sandstone, white, mostly medium-grained with some fine grains, subangular, quartzose, micaceous, chloritic, at 367-389 dirty with coaly material
- 395 - 402 Shale, gray, soft; a little sandstone, dark-gray, fine-grained, quartzose, much coaly material
- 402 - 412 Shale, gray, soft, micaceous in part
- 412 - 445 Shale, gray, micaceous, silty; and interbedded sandstone,

light-gray, fine-grained to silt, subangular, quartzose, micaceous, slightly calcareous, small amount of fine coaly material

- 445 - 467 Shale, gray, silty; and siltstone, gray, quartzose
- 467 - 472 Shale, gray, unctuous, underclay, a little is dark-gray and carbonaceous, a little is gray and silty, 60%; sandstone, white, medium-grained, subangular to subrounded, quartzose, slightly micaceous, a few green grains, slightly calcareous, 40%
- 472 - 551 Sandstone, same as above, with some fine grains at 480-485 and a few coarse grains at 485-510 and 537-551, slightly chloritic below 485, no sample at 519-525
- 551 - 581 Siltstone, gray, quartzose, argillaceous, very slightly calcareous
- 581 - 600 Siltstone, very light tan, quartzose, feldspathic, a little coaly or bituminous material on bedding surfaces
- 600 - 609 Sandstone, very light tan, very fine grained, subangular, quartzose, feldspathic, in part a little dirty with coaly material
- 609 - 685 Sandstone, white, fine-grained, subangular, quartzose, clean, at 609-620 very slightly feldspathic and micaceous, at 615-639 and 647-685 a few laminations of argillaceous to coaly material, at 667-677 most grains are well-rounded "occasionally moderately quartzos!"
- 685 - 699 Sandstone, white, fine-grained, a few coarse grains, subangular, quartzose, micaceous, chloritic, slightly calcareous
- 699 - 708 Sandstone, white, coarse- to medium-grained, subangular to subrounded, quartzose, clean except for a little biotite, milky-white pebble fragments of vein quartz
- 708 - 731 Sandstone, same as above, but medium-grained and no pebble fragments
- 731 - 784 Sandstone, same as above, but medium to fine-grained, at 736-743 and 771-778 a few coarse grains, at 778-784 a few pebble fragments as at 699-705
- 784 - 796 Sandstone, light-gray, fine-grained, subangular, quartzose, micaceous, chloritic, moderate amount of coaly material, dirty; some sandstone, same as above

* does not reach a quartzose nature until 743

- 796 - 798 "Sand"
 798 - 888 "Slate and shells"

TOP LEZ FORMATION 888

- 888 - 913 "Sand"
 913 -1022 "Slate and shells"
 1022-1117 "Sand"
 1117-1184 Sandstone, white, medium-grained with a few fine grains and coarse grains, subangular to subrounded, quartzose, clean, several pebbles of milky-white quartz, at 1162-1184 the grains exhibit crystal faces, at 1134-1142 no sample
Quartzose
- 1184-1188 No sample
- 1188-1197 Sandstone, light-gray, fine-grained to silt, subangular, quartzose, rather feldspathic, carbonaceous material on bedding surfaces
- 1197-1205 Siltstone, gray, quartzose, argillaceous
- 1205-1214 Shale, gray, silty, micaceous; some siltstone, same as above; a little shale, gray, unctuous, underclay
- 1214-1226 Sandstone, light-gray, fine-grained, subangular, quartzose, slightly feldspathic, micaceous, chloritic, calcareous cement, a few coaly laminations
- 1226-1254 Sandstone, light-gray, medium- to fine-grained, subangular to subrounded, quartzose, slightly feldspathic, micaceous, moderately chloritic, a few coaly laminations; at 1237-1244 a little coal
- 1254-1276 Sandstone, light-gray, medium- to fine-grained, a few coarse grains, a few fragments of quartz pebbles, subangular to subrounded, quartzose, slightly feldspathic, slightly calcareous, clean
no mod quartzose
- 1276-1287 Sandstone, same as above, but no coarse grains
- 1287-1295 Sandstone, same as above, but mostly fine-grained, some medium grains, a very few coarse grains

- 1295-1305 Sandstone, white to light-gray, fine-grained, subangular, quartzose, slightly micaceous, coaly laminations, in part calcareous
- 1305-1315 Shale, gray, silty, micaceous
- 1315-1319 No sample
- 1319-1331 Sandstone, white, fine-grained with a few medium grains, subangular, quartzose, moderately micaceous and chloritic, calcareous; some shale, gray, soft, finely micaceous
- 1331-1339 Shale, brown to dark-brown, in part carbonaceous, contains floating quartz grains which are fine and angular, coaly laminations
- 1339-1349 Sandstone, light-tan, very fine to medium-grained, with a few coarse grains, angular to subrounded, quartzose, in part very argillaceous; and shale, same as above
- 1349-1355 Sandstone, same as above; some shale, very light gray, soft, finely micaceous
- 1355-1387 Sandstone, light-tan, very fine to medium-grained, mostly subangular, quartzose, argillaceous in part, micaceous, chloritic, coaly laminations
- 1387-1397 Sandstone, same as above, but fine-grained and very slightly pyritic
- 1397-1400 No sample
- 1400-1420 Shale, gray, silty, hard
- 1420-1432 Sandstone, light-gray, fine- to very fine grained, subangular, quartzose, coaly laminations, in part calcareous, 40%; shale, same as above, 30%; coal and shale, dark-brown, carbonaceous, 30%
- 1432-1439 Siltstone, light-gray, quartzose, argillaceous, siderite nodules, 60%; shale, light-gray, soft, siderite nodules, underclay, 30%; coal and shale, dark-brown, carbonaceous, 10%
- 1439-1463 Sandstone, white to light-gray, fine-grained, subangular, quartzose, clean
- 1463-1471 Sandstone, same as above, but fine- to coarse-grained

Quartzos

- * quartzose
- 1471-1480 Sandstone, same as above, but medium- to coarse-grained, some quartz-pebble fragments
- 1480-1516 Sandstone, same as above, but medium-grained
- 1516-1523 Sandstone, same as above, but medium- to coarse-grained, no pebble fragments
- 1523-1550 Sandstone, same as above, but fine-grained, in the middle a few coarse grains, slightly feldspathic
- 1550-1572 Sandstone, same as above, but medium- to fine-grained with a few coarse grains, at 1565-1572 a few very coarse grains
- 1572-1576 No sample
- 1576-1597 Sandstone, light-gray, fine-grained with some medium grains and a few coarse grains, subangular, quartzose, moderately micaceous
NO
- * quartzose
* 1597-1645 Sandstone, white, medium- to very coarse grained, fragments of milky-white quartz pebbles, subangular to subrounded, quartzose, clean
- 1645-1664 Sandstone, light-tan, medium- to fine-grained, angular to subrounded, quartzose, moderately micaceous and chloritic, some green grains, in the upper part calcareous cement, in the lower part some argillaceous laminations
- 1664-1675 Sandstone, same as above, but gray; and shale, gray, silty
- 1675-1684 Sandstone, light-gray, fine-grained, subangular, quartzose, slightly feldspathic, very slightly micaceous and chloritic, nearly clean; and siltstone, gray, quartzose, argillaceous
- * quartzose
* 1684-1699 Sandstone, white, medium- to fine-grained, subangular to subrounded, quartzose, clean
- 1699-1707 Sandstone, same as above, with several whole quartz pebbles 6 m.m. in largest dimension
- 1707-1722 Sandstone, same as above, but mostly medium-grained with some fine grains and some coarse grains, no whole pebbles but some fragments, very slightly calcareous

Med Quartzose to Quartzos.

- 1722-1729 Sandstone, light-gray, fine-grained, subangular, quartzose, very slightly calcareous, clean except for a few coaly laminations
- 1729-1736 Sandstone, as at 1707-1722, but with some very coarse grains
- 1736-1744 Conglomerate, white, many fragments of quartz pebbles and some whole pebbles approximately 6 m.m. in largest dimension, apparently in a matrix of subangular to subrounded, fine to coarse quartz grains
- 1744-1755 Sandstone, white, medium- to coarse-grained, some pebble fragments, subangular to subrounded, quartzose, clean
- 1755-1764 Sandstone, same as above, but some fine grains and some very coarse grains, only a few pebble fragments, very slightly calcareous
- 1764-1769 Sandstone, same as above, but medium- to fine-grained, no pebble fragments
- 1769-1776 Sandstone, same as above; some shale, dark-gray and silty to light-gray and soft
- 1776-1784 Sandstone, same as above, but with a few coarse grains and many fragments of quartz pebbles, not calcareous
- 1784-1790 Sandstone, same as above, but no pebble fragments
- 1790-1795 Sandstone, same as above, but with many pebble fragments
- 1795-1802 Sandstone, same as above, some crystal faces on grains, one pebble fragment appears to be quartzite, in part very slightly calcareous

TOP BLUESTONE FORMATION (MISSISSIPPIAN) 1802

- 1802-1813 Shale, light-gray to light-green, soft, claystone
- 1813-1820 Shale, gray, micaceous
- 1820-1838 Shale, gray to rusty to light-gray, in part silty, in part unctuous, rusty shale is calcareous; and limestone, brown to gray, silty and argillaceous; some siltstone, light-gray, quartzose, calcareous (all apparently interbedded)
- 1838-1848 Shale, gray to light-gray, in part silty, in part unctuous; and siltstone, brown, quartzose, argillaceous to

carbonaceous cement

- 1848-1859 Shale, dark-brown, carbonaceous, slightly pyritic, a few tiny fossils
- 1859-1867 Siltstone, light-grayish green, quartzose, calcareous; some shale, gray to light-gray, slightly calcareous
- 1867-1897 Siltstone to sandstone, very fine grained, light-gray, quartzose, calcareous; at 1875-1897 some interbedded shale, light-gray, soft
- 1897-1902 Siltstone to sandstone, same as above, but in part light-green; a little limestone, brown, fossiliferous
- 1902-1935 Siltstone, white to light-gray, quartzose, slightly feldspathic, in part calcareous, in the lower third slightly micaceous
- 1935-1944 Siltstone, same as above; some interbedded sandstone, white, fine-grained, subangular, quartzose, clean
- 1944-1952 Siltstone, same as above, but micaceous
- 1952-1961 Sandstone, white, very fine grained, subangular, quartzose, clean; and siltstone, light-gray, quartzose, slightly feldspathic, micaceous, carbonaceous laminations
- 1961-1975 Sandstone, same as above
- 1975-2035 Shale, dark-brownish gray, hard, somewhat carbonaceous
- 2035-2062 Sandstone, white to light-gray, fine-grained, subangular, quartzose, pyritic, clean; and interbedded shale, same as above
- 2062-2080 Sandstone, same as above, but slightly calcareous, argillaceous material and coaly material on bedding surfaces; some interbedded shale, gray, slightly silty, micaceous
- 2080-2089 Shale, light-gray, appears unctuous but hard
- 2089-2104 Siltstone, gray to white, quartzose, micaceous, slightly pyritic, in the lower part disseminated coaly material

TOP PRINCETON SANDSTONE 2104