

Operator: United Fuel Gas Co.  
 Farm: G. C. Charles  
 Well No.: 9591  
 Location: Buchanan County (Harman Quad)  
           2250' N of 37°17'30"  
           3250' W of 82°12'30"  
 Elevation: 1587.12' Ground  
 Total Depth: 4250'  
 Drilling Commenced: November 1, 1970  
 Drilling Completed: November 10, 1970  
 Well Completed: January 28, 1971  
 Result: Gas well - Berea, Greenbrier

Geologic Summary

<u>Formation</u>	<u>Top</u>	<u>Bottom</u>	<u>Thickness</u>
Pennsylvanian System			
Post Lee Formation "in" at surface	628		628'
		Hagy coal 138-140'	*Noted by driller
		Splash Dam coal at 240'	
		Kennedy coal at 520'	
Lee Formation	628	1742	1114'
		quartzose sand 628-705	77'
		quartzose sand 1040-1225'	185'
		quartzose sand 1315-1373'	58'
		War Creek coal horizon at 1420'	
		quartzose sand 1423-1435	12'
		quartzose sand 1626-1718	92'
		quartzose sand 1733-1742	9'
Pocahontas Formation	"absent"		
Mississippian System			
Bluestone Formation	1742	2290	548'
Pride Shale	2120	2290	170'
Princeton Interval	2290	2400	110'
Little Stone Gap Mem.?	2400	2420	20'

2120  
1527  
-703

Maxon Sands	2715	2822	107'
	2861	2869	8'
	2876	2957	81'
Greenbrier Formation	3005	3459	495'
Maccrady	3459		

Remarks: Elevation and location of well with reference to measured sections no's 212 and 182 in Bulletin 18, coal geology along Bull Creek, and Stilton Creek Core 5 miles E-NE, indicate that well spudded in about 160' above the Hagy Coal, and 260' above the Splash Dam Coal. Formational boundaries determined from geophysical well logs and log supplement, which are measured from 10 feet above ground level; depths are uncorrected. Formation boundaries not picked below top of Maccrady Formation. Correlations by Marshall S. Miller, VDMR.

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Geological log supplement by Marshall S. Miller, 1971.

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>
1600-1610	10'	Shale, dark gray to gray, silty, finely micaceous, slightly carbonaceous
1610-1625	15'	Sandstone, gray to light tan, fine grained, very micaceous, with abundant silt and argillaceous material, 55% quartz
1625-1650	25'	Sandstone, white, quartzose, fine to medium grained, subangular, poorly sorted, with scattered muscovite and dark rock fragments, white clay matrix material, about 90% quartz, 5% matrix, 5% rock fragment
1650-1680	30'	Sandstone, white, quartzose, fine grained, subrounded, well sorted, over 90% quartz
1680-1745	65'	Sandstone, white, quartzose, fine to coarse grained, subround to subangular, moderately sorted, over 95% quartz, some scattered argillaceous material or possibly a shaly interbed present 1720-1735
1745-1800	55'	Shale, red, green, gray, locally silty, generally calcareous
1800-1820	20'	Siltstone, green and gray, locally shaly, generally calcareous
1820-1910	90'	Siltstone, red and green, calcareous

1910-2000	90'	Sandstone, light tan to gray, very fine grained, very silty, calcareous, interbeds with red and green shales
2000-2040	40'	No samples
2040-2120	80'	Sandstone as in 1910-2000
2120-2290	170'	Siltstone, gray to dark gray to dark brown, argillaceous
2290-2400	110'	Sandstone, light tan to buff, very fine to fine grained, could be described as a coarse grained siltstone, very silty and powder-like, grain size gradually increases downward to medium grained size, mostly quartz, very rare muscovite, and rock fragments
2400-2420	20'	Sandstone, brownish gray, very fine grained, silty, calcareous
2420-2500	80'	Siltstone, red, green, gray, very calcareous