

Operator: United Fuel Gas Company  
 Farm: Zach Justice et al  
 Well No. 8606

Buchanan County Well No. 25  
 Gamma Ray Log [0 - 3600]  
 Drillers Log [0 - 4780]

Location: Buchanan County  
 12,650' S. of 37°30'  
 6,200' E. of 82°05'

Elevation: 1101.64' Ground

Total Depth: 4780'

Drilling Commenced: April 25, 1961

Well Completed: August 30, 1961

Result: Gas Well

Geologic summary and correlations by: Marshall S. Miller

PENNSYLVANIAN SYSTEM

top	surface
bottom	1571 (Depths corrected by gamma ray log)

Description and footage

1487 - 1571 Conglomeratic sandstone, white to light gray, moderately cemented, medium to very coarse grained; abundant pebbles, poorly sorted, locally shaly and silty. Sandstone is subangular to angular with rare biotite and muscovite.

MISSISSIPPIAN SYSTEM

Thickness

top	1571	1429'
bottom	3500?	

Bluestone Formation

top	1571	219'
bottom	1790	
<u>RED MEMBER</u>		
top	1571	64'
bottom	1635	
<u>GLADY FORK SS MEMBER</u>		
top	1635	65'
bottom	1700	
<u>GRAY MEMBER</u>		
top	1700	90'
bottom	1790	

1571 - 1635 Mostly siltstone that is locally shaly, predominately light to medium gray with presence of red and green colors scattered throughout. Usually soft, flaky, no apparent bedding. Considerable muscovite and biotite, some pyrite. Also presence of carbonaceous material.

1635 - 1700 Essentially a "dirty" sandstone that is white, gray to light gray to greenish gray with varying amounts of silty material. Is usually well sorted, fine grained, subrounded. Rare biotite, muscovite and carbonaceous material. A silty sandstone.

1700 - 1790 Mostly siltstone and shale with gray to dark gray color. More silty in top, become more shaly in bottom 50'. Progresses from a gray, soft, flaky, poorly fissile, argillaceous siltstone to a dark gray, hard, brittle, good fissility shale.

PRINCETON SANDSTONE

top	1790	80'
bottom	1870	

1790 - 1815 Mostly sandstone white, clear, well sorted and fine grained. Interbedded with gray siltstone which is locally shaly and calcareous.

1815 - 1850 Dark gray siltstone which is locally shaly but not calcareous; small rare fragments of sandstone, however, with calcareous cement. As a whole noncalcareous. Small amount of coal.

1850 - 1870 Sandstone and siltstone. Sandstone is very fine grained, well sorted, white and clear, calcareous cement. Gives speckled appearance (salt and pepper). Contains small fragments of biotite and carbonaceous material. The siltstone is dark gray, calcareous and is locally a calcareous dark gray, good fissility shale. Also stringers of shaly limestone.

(\*) The dark gray siltstone is an unusual amount of siltstone to be called Princeton sandstone (1815 - 1850). However, since sandstone of Princeton type is above and below this sequence and small amounts of sandstone are dispersed throughout the siltstone, and since the calcareous unit (Little Stone Gap Member) is not recognized until the depth of 1870, and since the Little Stone Gap is usually overlain disconformably by the Princeton sandstone, and since calcareous material can be recognized in the bottom 3' as though it was reworked into the Princeton sandstone, the siltstone sequence is thus logged as a large silty zone within the Princeton.

Little Stone Gap Member

top	1870	23'
bottom	1893	

1870 - 1893 Essentially a calcareous sequence of gray and red siltstone and shales, and light brown limestone and dolomite. Limestone is hard, and cryptocrystalline. Any fossil content is difficult to identify.

Middle Red Member

top	1893	152'
bottom	2045	

1893 - 2045 Chiefly red silty shale, interbedded with thin beds of sandstone, siltstone, impure limestone, and dolomite. Referred to as "slate and shells" by drillers. Very conformable with Little Stone Gap Member above and Stony Gap Sandstone below. The boundary above is gradational and is decided by the eventual predominance of the red silty shale. The Stony Gap Sandstone is also not very distinctive. The silty shales grades to sandy siltstone which is determined and grouped as Stony Gap Sandstone. The gamma ray log indicates the presence of more sandy material and is thus used to determine the exact boundaries of the Stony Gap Sandstone Member.

Stony Gap Sandstone

Thickness

top	2045	
bottom	2155	105'

The boundaries are difficult to recognize. The Stony Gap Sandstone has lost most of its distinguishing characteristics in this well. The drillers, who also usually determine this interval, were unable to recognize. The sandstone that is present, is white to light gray, well cemented, very fine grained, well sorted and subrounded to subangular, and always interstitially silty. Also no visible porosity. The bottom boundary is decided by the increase in shaly material of the Bluefield Formation below and indicative slight increase in radioactivity of the gamma ray log.

Hinton Formation

Thickness

top	1870	285'
bottom	2155	

Bluefield Formation

Thickness

top	2155	303'
bottom	2458	

2155 - 2458 Chiefly gray, light gray and red shaly siltstone, locally calcareous. Poor to fair fissility. Some muscovite and some carbonaceous material. Moderately hard usually. A crinoidal limestone is recognized about 20' above the base of the Bluefield. The contact is gradational with the underlying Greenbrier.

A sandstone unit is recognized in the cuttings and on the gamma ray log, and is named the lower Maxon (2375 - 2390): very similar to Stony Gap lithology. White to light gray, well cemented, fine grained, well sorted and interstitially silty. Slightly porous.

Greenbrier Formation

Thickness

top	2458	366'
bottom	2824	

2458 - 2824 Dense crystalline, fossiliferous locally cherty limestone; gray, brownish gray to black. Silty and shaly at top (2458 - 2541), locally oolitic and crinoidal. Bottom 30' becomes more dolomitic (2794 to 2824).

Maccrady Formation

Thickness

top	2824	106'
bottom	2930	

2824 - 2930 Red, siltstone, moderately hard, rare biotite and muscovite.

Price Formation

Thickness

top	2930	
bottom	3465	

2930 - 3465 A very fine grained silty sandstone gray in color and soft (poorly cemented) at top... becomes more shalier in middle, a dark gray shale with fair to good fissility. Bottom zone distinguished by black, fissile, highly radioactive shale.