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Buchanan Well No. 28 Operator: United Fuel Gas Co. Drillers log (0 - 4815)Farm: Zach Justice Gamma Ray log (0 - 1904)Well No.: 8848 Sample log (2031 - 3009) Location: Buchanan County 11,150' S of 37°30') Approximate 12,250' E of 82°05') Elevation: 1099.40' Ground Total Depth: 4815' Drilling Commenced: August 24, 1960 Well Completed: Abandoned March 1961 Result: Dry hole, P & A Geologic summary and correlations by: Marshall S. Miller

*Correlations to 2031' done by gamma ray log, supplemented by drillers log.

1 011113 / 2			
	top bottom	surface 15 2 5	
Mississippi	ian System		Thicknes
	top bottom	1525 3457?	1932'
Bluestone I	Formation		
	top bottom	1525 1812	287'
Red Me	ember		
	top bottom	1525 1590	65'
Glady 1	Fork SS Member		
	top bottom	1590 1630	40'
<u>Gray N</u>	<u>1ember</u>		
	top bottom	1630 1813	183'

Pennsylvanian System

Princeton Fo	rmation	Т	hickness
	top	1813	. 82'
	bottom	1895	
Hinton Forma	ation		
	· · ·	1005	10/1
	top	1895	186'
	bottom	2081	
Little Sto	one Gap Member		
	top	? cannot be concluded	because of
	bottom	? the absence of well s	amples
Red Men	iber ?		
	top	? cannot be determined	l, no samples
	bottom	2065	6
2031 - 2065	Red and grav siltsto	ne locally shaly and calc	areous No

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2031 – 2065 Red, and gray siltstone locally shaly and calcareous. No bedding, poorly fissile, common muscovite and biotite, and some carbonaceous material.

Stony Gap Sandstone

Thickness

top	2065	16'
bottom	2081	

2065 - 2081 Interval is characteristic of Stony Gap Sandstone. Sandstone is white, clear, well cemented, fine grained, well sorted, subrounded to angular, nonporous, contains small amounts of biotite and muscovite, considerable amount of carbonaceous material and stingers of argillaceous and ferruginous siltstone.

*The sequence of samples below contain local amounts of similar Stony Gap lithology. However, the overall general lithology assumes a shaly calcareous nature that is typical of the Bluefield Formation. Also, since the Bluefield Formation is known to contain sandstone of similar Stony Gap lithology, the continuous characteristic interval (2065 - 2081) is logged as Stony Gap sandstone and the interval below classified as Bluefield.

Bluefield Formation

top	2081	360'
bottom	2441	

2081 - 2441 Interval is chiefly gray and red siltstone of a shaly, calcareous nature. Siltstone is sometimes variegated (2081 - 2119) poorly fissile, moderately hard and brittle and contains biotite, muscovite, pyrite and carbonaceous material in varying amounts. Siltstone varies locally from a sandy siltstone to a shaly calcareous siltstone. Sandstone which might be termed lower Maxon sandstone is recognized in the intervals (2174 - 2185) and (2330 - 2350). The sandstone is white to clear to dark gray and is usually fine grained, fairly well sorted and is interstitially silty. Biotite, muscovite and pyrite are common accessory minerals. The sandstone is obviously interbedded with gray siltstone, which makes up 30% to 60% of the well cuttings. A soft, flaky, poorly fissile siltstone is found above and below these sandy intervals.

Greenbrier Formation		Thickness
top	2441	385
bottom	2826	

2441 - 2826 A shaly limestone, dark gray to light brown, with fragments of fossils is typical of the upper 100' (2441 - 2550). The limestone progresses downward to a gray, drak gray, and brown, hard, crytocrystal line limestone, locally oolitic and cherty.

Maccrady Formation

top	2826	· \\4 /
bottom	2940	

Red, moderately hard, brittle siltstone, no apparent bedding with muscovite and biotite.

Price Formation

top	2940
bottom	? no samples past 3009

2940 - 3009 Fine grained silty sandstone, light gray, moderately cemented, very fine grained and well sorted, subrounded to subangular. Rare biotite, common muscovite. \Box

Company: United Fuel Gas Co. Farm: Zach Justice et. al. Well No.: 8848 Elevation: 1099.40' Total Depth: 4815' Location: Buchanan County 11,150' S. of 37°30' 11,750' W. of 82°00' Drilling Commenced: 8/24/60 Well Completed: 3/61 Result: Dry hole VDMR Well

Geologic log Samples studied and described by: John M. Wilson Virginia Division of Mineral Resources June, 1963

muscovite, rare pyrite, rare carbonaceous material,

and rare iron oxide stains.

GEOLOGIC LOG

Depth	Thickness	Description
0-2031	2031	No samples.
2031-2050	19	Siltstone, locally finely sandy, locally shaly, medium to dark gray, moderately soft, flaky, no apparent bedding to poorly fissile, siliceous, argillaceous, with: rare biotite, common muscovite, rare carbonaceous material, and rare iron oxide stains, with; stringers of Sandstone, white to light gray, moderately cemented, very fine to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: rare muscovite, rare iron oxide stains. Nonporous.
2050-2065	15	Siltstone, locally shaly, dark gray, red, moderately hard, brittle, poorly fissile, argillaceous, ferruginous, with: common biotite, abundant muscovite, rare iron oxide stains, and common granule-sized milky white quartz.
2065-2081	- 16	Sandstone, white, clear, well cemented, very fine to fine-grained, well sorted, subrounded to angular, interstitially silty, siliceous, with: rare biotite, rare muscovite, common carbonaceous material, and common iron oxide stains. Nonporous to slightly porous with stringers of Siltstone, medium to dark gray, red, groop moderately hard brittle, no apparent bedding
, t	· · · · ·	to poorly fissile, argillaceous, ferruginous, with: rare biotite, abundant muscovite and rare iron oxide stains.
2081-2119	38	Siltstone, variegated, locally shaly, light to dark gray, red, green, tan, moderately hard, brittle, no apparent bedding to poorly fissile, calcareous (slightly), argillaceous, with: rare biotite, rare

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	0)	-2-	v	DM Well No.	563	
2119-2128	9		Siltstone, to dark gra- bedding to p with:rare b ceous mater	locally fin y, moderate poorly fiss iotite, com ial, and ra	ely sandy, lo ly hard, brit ile, siliceou mon muscovite re iron oxide	ocally shaly, lig ttle, no apparent us, argillaceous, e, common carbona e stains.	ght t 9 a-
2128-2174	46		Siltstone, moderately poorly fiss common biot rare carbon	locally sha hard, britt ile, argill ite, common aceous mate	ly, light to le, no appare aceous, ferre muscovite, : erial.	medium gray, red ent bedding to uginous, with: rare pyrite, and	d,
2174-2185	11		Interbedded Sandstone, fine to med to angular, muscovite, and common	; Siltstone white to cl ium-grained siliceous, rare pyrite iron oxide	, as in 2128 ear, moderate , medium sor , with: rare , rare carbo stains. Slig	-2174, with; ely cemented, ve: ted, subrounded, biotite, rare naceous material htly porous.	ry ,
2185-2227	42)	Siltstone, shaly, medi brittle, no siliceous, biotite, ab material, a	micaceous, um to dark apparent b argillaceou undant musc nd rare irc	locally fine gray, red, mo edding to po is, ferrugino covite, rare on oxide stai	ly sandy, locally oderately hard, orly fissile, us, with: abundan carbonaceous ns.	y nt
2227-2243	16		Shale, loca moderately fissility, common musc material.	lly silty, hard, britt argillaceou ovite, comm	red (common) le, fair fis s, with: common pyrite, a	green-gray, ŝility to good mon biotite, nd rare carbonac /	eous
2243-2276	33		Siltstone, gray, moder to poorly f rare muscov	locally sha ately hard, issile, arc ite, and co	ly, medium t , brittle, no gillaceous, w pmmon carbona	o dark gray, gre apparent beddin ith: rare biotit ceous material.	en- g e,
2276-2288	12		Limestone, brown, mode bedding, cr common calc	shaly, ligh rately hard yptocrystal ite. '	nt to dark gr 1, fossil fra Lline to micr	ay, light to dar gmental, no appa crystalline, wit	k rent h:
2288-2318	30		Siltstone, (common), m to poorly f common musc	light to da oderately s issile, arg ovite, and	ark gray, red soft, flaky, gillaceous, w rare carbona	(common), green no apparent bedd tith: common biot ceous material.	ing; ite,
2318-2330	12		Siltstone, to dark gra moderately poorly fiss with: commo common carb stains.	locally fir y, red (ran hard, britt ile, calcan on biotite, ponaceous ma	nelysandy, lo re), green (r tle, no appar reous (slight common musco aterial and r	cally shaly, lig are), tan, ent bedding to ly), argillaĉeou ovite, rare pyrit are iron oxide	ht s, e,
2330–2343	13		Siltstone, sandstone, to dark gra bedding to with: commo and abundan	grades loca locally fir y, moderate poorly fiss n biotite, t carbonace	ally to a ver nely sandy, ly hard, bri sile, siliceo common musco eous material	y fine-grained ocally shaly, li ttle, no apparen us, argillaceous vite, common pyr:	ght t , ite,

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	\cap	-3- VDMP ell No. 563
2343-2373	30	Siltstone, as in 2330-2343, with stringers of; Sand- stone, white to clear, poorly cemented, very fine to medium-grained, medium sorted, subrounded to subangular interstitially silty, siliceous, with: common biotite, common muscovite, rare carbonaceous material, and rare iron oxide stains. Nonporous to slightly porous.
2373-2412	39	<pre>Siltstone, locally finely sandy, locally shaly, light to dark gray, red, green, moderately hard, brittle, no apparent bedding to poorly fissile, calcareous (slightly), siliceous, argillaceous, with: common biotite, common muscovite, and common carbonaceous material.</pre>
2412-2441	29	Siltstone, as in 2373-2412, calcareous.
2441-2469	28	Limestone, shaly, light to dark gray, light brown, moderately hard, fossil fragmental, no apparent bedding, cryptocrystalline to microcrystalline, with: rare mica, rare calcite, and rare carbonaceous material.
2469-2550	81	Interbedded; Limestone, as in 2441-2469, with; Shale, medium to dark gray, moderately soft, flaky, fair to good fissility, calcareous, argillaceous, with: rare muscovite.
2550-2568	18 /	Limestone, light to dark gray, light to dark brown, white, moderately hard, fossil fragmental, no apparent bedding, cryptocrystalline to microcrystalline, with: abundant calcite and rare carbonaceous material.
2568-2569 -	1	No samples.
2569-2579	10	Limestone, as in 2550-2568.
- 2579-2594 ^{* .}	15	Limestone, silty, light to dark gray, white, moderately hard, fossil fragmental, rare, no apparent bedding, microcrystalline, with: abundant calcite.
2594-2642	48	Limestone, light gray, dark gray (rare), moderately hard, oolitic (locally), no apparent fossil content, no apparent bedding, cryptocrystalline, with: common calcite and rare iron oxide staining.
2642-2700	58	Limestone, dark gray, light to dark brown, moderately hard, oolitic (locally), no apparent fossil content, no apparent bedding, cryptocrystalline to microcrystal- line, with: common calcite.
-2700-2799-	99	Limestone, light gray, light brown, white, moderately hard, fossil fragmental, rare, no apparent bedding, cryptocrystalline, with: common calcite and rare iron oxide staining.

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		-4- VDMR 11 No. 563
2799-2826	27	Limestone, light brown, white, moderately hard, no apparent fossil content, no apparent bedding, microcrystalline, with: rare chert, common calcite.
2826-2909	83	Siltstone, locally finely sandy, red, moderately hard, brittle, no apparent bedding, ferruginous, with: common biotite, abundant muscovite, and rare carbonaceous material.
2909-2926	17	Siltstone, red, black, moderately hard, brittle, no apparent bedding, argillaceous, ferruginous, with: common biotite, common muscovite, and rare carbonaceous material.
2926-2940	14	Siltstone, dark gray, red (rare), black, moderately hard, brittle, no apparent bedding, argillaceous, with:rare biotite, common muscovite, and rare carbonaceous material.
2940-3000	60	Siltstone, grades locally to a very fine-grained Sandstone, locally finely sandy, locally shaly, light to dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, and common carbonaceous material.
3000-3009	9	Sandstone, silty, light gray, moderately cemented, very fine to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: rare biotite, common muscovite, common carbonaceous material common iron oxide stains. Nonporous to slightly porous.
3009-4815	1806	No samples.

4815' Total Depth

GEOLOGIC SUMMARY

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Mississippian System

Hinton Formation	in	2031
	bottom	2227
Stony Gap Sandstone	top	2065
, <u>-</u>	bottom	2227
Bluefield Formation	top	2227
	bottom	2441
Greenbrier Limestone	top	2441
	bottom	2826
Maccrady Formation	top	2826
	in	3009 (deepest sample)

Correlations by: J. M. Wilson and R. C. Milici

September 1963