

Operator: United Producing Company, Inc.
 Farm: Yukon Pocahontas Coal Company
 Well No.: 16-1931
 Location: Buchanan County
 3350' N. of 37°15'
 6300' E. of 82°00'
 Elevation: 1830.6' Ground
 Total Depth: 4189' (4187' SLM)
 Drilling Commenced: 4/19/52
 Well Abandoned: 6/26/53
 Result: Dry hole

Geologic Log
 Samples studied and
 described by:
 Clarke Jones
 March, 1963

GEOLOGIC LOG

<u>Depth</u>	<u>Interval</u>	<u>Description</u>
0-2045	2045	No samples
2045-2073	28	Siltstone, light gray, dark gray, red-brown, moderately hard, brittle, no apparent bedding, calcareous, siliceous.
2073-2078	5	Sandstone, white to clear, poorly cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, abundant chlorite. Slightly porous. With stringers of Siltstone, light gray, dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous.
2078-2082	4	Interbedded; Sandstone, white, clear, poorly cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, abundant chlorite, Slightly porous. Siltstone, locally finely sandy, light gray to medium gray, red, moderately soft, flaky, no apparent bedding, siliceous, argillaceous.
2082-2107	25	Siltstone, red-brown, green, moderately hard, brittle, no apparent bedding, siliceous.

2107-2109	2	Interbedded; Sandstone, white, light gray, poorly cemented, fine-grained, well sorted, subrounded to subangular, siliceous, calcareous, with: common biotite, rare muscovite, common chlorite. Slightly porous. Siltstone, light gray, medium gray, red-brown, green, moderately soft, brittle, no apparent bedding, calcareous, siliceous.
2109-2138	29	Siltstone, light to medium gray, green, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: rare carbonaceous material, rare carbonaceous laminae.
2138-2165	27	Siltstone, locally finely sandy, dark gray, brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous.
2165-2214	49	Siltstone, locally finely sandy, light gray, dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite.
2214-2270	56	Interbedded; Sandstone, white, light gray, well cemented, very fine to fine-grained, well sorted, subrounded to subangular, siliceous, with: common muscovite, rare pyrite, common carbonaceous material. Slightly porous. Siltstone, medium to dark gray, moderately hard, brittle, no apparent bedding, siliceous, with: common muscovite, rare pyrite, and rare carbonaceous material.
2270-2273	3	Sandstone, white, light gray, well cemented, very fine to fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, common carbonaceous material. Slightly porous. With stringers of Siltstone, locally finely sandy, dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite.
2273-2286	13	Sandstone, white, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: rare biotite, common muscovite, rare chlorite, and rare carbonaceous material. Slightly porous. With stringers of Siltstone, dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite, and common carbonaceous material.

- 2286-2362 76 Shale, dark gray, moderately hard, brittle, poorly fissile, argillaceous, with: rare pyrite, .
- 2362-2370 8 Shale, dark gray, moderately hard, brittle, poorly fissile, argillaceous, with: common muscovite, rare pyrite, and stringers of Siltstone, locally finely sandy, dark gray, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: common muscovite.
- 2370-2376 6 Interbedded; Sandstone, white, well cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common muscovite, rare chlorite. Slightly porous. Interbedded; Shale, dark gray, platy, with: rare pyrite.
- 2376-2385 9 Shale, dark gray, moderately hard, brittle, poorly fissile to platy, argillaceous, with: common muscovite, and stringers of interbedded Sandstone, white, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, rare chlorite, and rare carbonaceous material. Slightly porous.
- 2385-2413 28 Interbedded; Siltstone, locally finely sandy, locally shaly, dark gray, moderately hard, brittle, no apparent bedding, siliceous, with: common biotite, rare muscovite. Interbedded; Sandstone, white, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, and rare chlorite. Slightly porous.
- 2413-2422 9 Interbedded; Sandstone, light gray, well cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common muscovite, rare carbonaceous material, and rare coal. Slightly porous. Interbedded; Shale, locally finely sandy, dark gray, moderately hard, brittle, poorly fissile to platy, argillaceous, with: rare pyrite and rare coal.

- 2422-2448 26 Siltstone, locally finely sandy, locally shaly, dark gray, moderately hard, brittle, fair fissility, argillaceous, with: rare muscovite, and plant fossils - calamites.
- 2448-2455 7 Interbedded; Sandstone, white, clear, light gray, poorly cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, rare pyrite, and common chlorite. Slightly porous. Interbedded; Siltstone, dark gray, moderately hard, brittle no apparent bedding, siliceous, argillaceous, with: common muscovite.
- 2455-2458 3 Interbedded; Sandstone, white, clear, light gray, poorly cemented, fine-grained, well sorted, subrounded to subangular, silt, siliceous, with: rare muscovite, common pyrite, common chlorite, common carbonaceous material, and abundant coal. Slightly porous. Interbedded; Siltstone, locally finely sandy, dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite, and abundant coal.
- 2458-2466 8 Sandstone, white, clear, light gray, poorly cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: rare pyrite. Slightly porous. With stringers of interbedded, Siltstone, dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous.
- 2466-2480 14 Interbedded; Sandstone, white, clear, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common chlorite. Slightly porous. Interbedded; Siltstone, dark gray, moderately hard, brittle, good fissility, argillaceous, with: common muscovite.
- 2480-2523 43 Sandstone, white, clear, poorly cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: rare biotite, rare muscovite, and rare pyrite. Slightly porous. With stringers of Siltstone, locally finely sandy, dark gray, moderately hard, brittle, poorly fissile, siliceous, argillaceous.

2523-2534	11	Siltstone, locally finely sandy, medium gray, dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite, and stringers of Sandstone, clear, poorly cemented, fine-grained, well sorted, subrounded to subangular, siliceous. Slightly porous.
2534-2605	71	Siltstone, locally finely sandy, locally shaly, medium gray, dark gray, moderately hard, brittle, poorly fissile, calcareous, siliceous, argillaceous, with: rare carbonaceous material.
2605-2650	45	Interbedded; Limestone, silty, light gray, dark gray, moderately hard, fossil fragmental (rare brachiopods, rare crinoid stems, and rare calamites (?)), cryptocrystalline. Interbedded; Siltstone, dark gray, moderately hard, brittle, no apparent bedding, calcareous, siliceous, argillaceous, with: rare pyrite.
2650-2660	10	Shale, dark gray, red, moderately hard, brittle, poorly fissile, argillaceous.
2660-2673	13	Interbedded; Shale, locally finely sandy, dark gray, red, moderately hard, brittle, poorly fissile, argillaceous, rare muscovite, with: interbedded; Sandstone, white, light green, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, and common chlorite. Slightly porous.
2673-2686	13	Siltstone, locally finely sandy, red-brown, moderately hard, brittle, poorly fissile, siliceous, with: common muscovite, and stringers of Shale, dark gray, moderately hard, brittle, poorly fissile, siliceous, argillaceous, .
2686-2699	13	Shale, locally finely sandy, red, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: common biotite, and common muscovite.
2699-2712	13	Shale, locally finely sandy, light to dark gray, red-brown, moderately hard, brittle, poorly fissile, argillaceous, and common muscovite.

2712-2763	51	Interbedded; Sandstone, white, clear, moderately cemented, fine-grained, well sorted, subrounded to subangular, silty, siliceous, with: rare pyrite, and common coal. Slightly porous. Interbedded, Shale, light gray, dark gray, red, moderately hard, brittle, poorly fissile to platy, argillaceous, with: common muscovite.
2763-2775	12	Interbedded; Sandstone, white, clear, well cemented, fine to medium-grained, well sorted, subrounded to subangular, silt, siliceous, calcareous, with: common chlorite. Slightly porous, Interbedded; Shale, medium to dark gray, red, moderately hard, brittle, no apparent bedding, argillaceous.
2775-2795	20	Interbedded; Sandstone, white, clear, well cemented, fine-to medium-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, rare muscovite, and common chlorite. Slightly porous. Interbedded; Shale, locally finely sandy, medium gray, dark gray, red, moderately hard, brittle, poorly fissile, calcareous, siliceous, argillaceous, with: common muscovite.
2795-2799	4	No sample
2799-2803	4	Interbedded; Sandstone, white, clear, well cemented, fine-to medium-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, rare muscovite, and common chlorite. Slightly porous. Interbedded; Shale, locally finely sandy, medium gray, dark gray, red, moderately hard, brittle, poorly fissile, calcareous, siliceous, argillaceous, with: common muscovite.
2803-2814	11	Interbedded; Sandstone, white, clear, poorly cemented, fine-to medium-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, rare muscovite, and common chlorite. Slightly porous. Interbedded; Shale, locally finely sandy, dark gray, red, moderately hard, brittle, poorly fissile, argillaceous.
2814-2815	1	No sample

2815-2830	15	Shale, red, moderately hard, brittle, poorly fissile, argillaceous, with stringers of Limestone, shaly, light gray, dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare pyrite.
2830-2832	2	Siltstone, locally shaly, medium gray, dark gray, red, moderately hard, brittle, fair fissility, siliceous, argillaceous, with: common muscovite.
2832-2837	5	Siltstone, locally shaly, medium gray, dark gray, red, moderately hard, brittle, fair fissility, siliceous, argillaceous, with: common muscovite, rare pyrite and stringers of Limestone, light gray, dark gray, moderately hard, no apparent bedding.
2837-2843	6	Siltstone, locally finely sandy, locally shaly, light gray to dark gray, red, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: common muscovite.
2843-2847	4	Sandstone, tan, well cemented, very fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite. Slightly porous. With stringers of Shale, dark gray, red-brown, moderately hard, brittle, poorly fissile, siliceous, argillaceous.
2847-2880	33	Sandstone, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, rare pyrite, and abundant chlorite, Slightly porous. With stringers of Shale, dark gray, red-brown, moderately hard, brittle, fair fissility, argillaceous.
2880-2905	25	Sandstone, white, clear, well cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, abundant muscovite, rare pyrite, common chlorite, common carbonaceous material. Slightly porous. With stringers of Shale, locally finely sandy, dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite.

2905-2924	19	Interbedded; Sandstone, white, clear, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, rare pyrite, common chlorite, and rare carbonaceous material. Slightly porous. With stringers of Shale, light gray, dark gray, red, moderately hard, brittle, poorly fissile, siliceous, argillaceous,
2924-2939	15	Shale, locally finely sandy, light to dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous argillaceous.
2939-2968	29	Interbedded; Sandstone, white, light gray, well cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite, common pyrite, and common carbonaceous material. Slightly porous. Interbedded Shale, locally finely sandy, light to dark gray, red-brown, moderately hard, brittle, poorly fissile, argillaceous, with: common muscovite.
2968-2982	14	Shale, dark gray, moderately hard, brittle, poorly fissile, argillaceous, with: common pyrite.
2982-2990	8	Shale, locally finely sandy, dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: rare pyrite, and stringers of Siltstone, dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite, and rare pyrite.
2990-2996	6	Interbedded; Sandstone, white, light gray, tan, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common muscovite, and rare pyrite. Slightly porous. Shale, dark gray, red-brown, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: rare pyrite.

2996-3005	9	Sandstone, white to light gray, moderately cemented, fine-grained, well sorted, sub-rounded to subangular, siliceous, with: common biotite, abundant muscovite, common chlorite, and rare carbonaceous material. Slightly porous. With stringers of Shale, dark gray, red-brown, moderately hard, brittle, poorly fissile, siliceous.
3005-3025	20	Shale, as in 2992-3005, with stringers of Sandstone.
3025-3049	24	Shale, locally finely sandy, light to dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common pyrite, and rare coal.
3049-3057	8	Shale, locally silty, light gray to dark gray, moderately hard, brittle, no apparent bedding, calcareous, argillaceous, with: rare pyrite, and rare carbonaceous material.
3057-3081	24	Shale, locally finely sandy, light to dark gray, red-brown, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: rare pyrite, and rare coal.
3081-3095	14	Interbedded; Sandstone, white to light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common chlorite. Slightly porous. Interbedded; Shale, locally finely sandy, light to dark gray, red-brown, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: common muscovite, and rare pyrite.
3095-3124	29	Siltstone, locally shale, light to dark gray, red-brown, moderately hard, brittle, poorly fissile to good fissility, siliceous, argillaceous, with: common muscovite and rare pyrite.
3124-3153	29	Interbedded; Sandstone, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common muscovite, rare pyrite, and common carbonaceous material. Slightly porous. Interbedded; Shale, light to dark gray, red-brown, moderately hard, brittle, fair fissility, argillaceous, with: rare pyrite.

3153-3163	10	Siltstone, locally finely sandy, locally shaly, light to dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite, rare pyrite.
3163-3213	50	Siltstone, locally finely sandy, locally shaly, light to dark gray, red-brown, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: common muscovite, and rare pyrite.
3213-3218	5	Interbedded; Sandstone, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, abundant muscovite. Slightly porous. Interbedded; Siltstone, locally shaly, light to dark gray, red-brown, moderately hard, brittle, no apparent bedding, argillaceous, with: common muscovite.
3218-3223	5	Siltstone, locally shaly, light to dark gray, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: rare pyrite and stringers of Sandstone, white, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: abundant muscovite, and common chlorite. Slightly porous.
3223-3228	5	Interbedded; Siltstone as in 3218-3223, with interbedded Sandstone.
3228-3279	51	Siltstone, locally shaly, light to dark gray, rare red-brown, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: rare pyrite, and stringers of Sandstone, white, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: rare pyrite. Slightly porous.
3279-3295	16	Interbedded; Sandstone, white, clear, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, calcareous, with: common biotite, common muscovite, common chlorite and rare coal. Slightly porous. With interbedded, Siltstone, locally shaly, light to dark gray, rare red-brown, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: common muscovite, and rare pyrite.

- 3295-3314 19 Siltstone, locally finely sandy, locally shaly, medium to dark gray, moderately hard, brittle, no apparent bedding, calcareous, siliceous, argillaceous, with: rare muscovite, and rare pyrite.
- 3314-3330 16 Shale, medium to dark gray, rare red-brown, moderately hard, brittle, poorly fissile, argillaceous, with rare pyrite, and rare fossils, pyritized internal gastropod mold.
- 3330-3335 5 Siltstone, locally finely sandy, locally shaly, light to dark gray, red-brown, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: abundant muscovite, and rare pyrite.
- 3335-3351 16 Shale, locally silty, light to dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite, and rare pyrite.
- 3351-3356 5 Shale, locally silty, light to dark gray, moderately hard, brittle, poorly fissile, calcareous, argillaceous, with: common muscovite, and rare pyrite.
- 3356-3367 11 Limestone, light to dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, and rare pyrite.
- 3367-3379 12 Interbedded; Limestone, shale grains in calcareous matrix, light to dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: interbedded; Shale, medium to dark gray, moderately hard, brittle, fair fissility, argillaceous, and rare pyrite.
- 3379-3384 5 Limestone, shaly, light to dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare pyrite, and stringers of Sandstone, white, clear, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, Slightly porous.
- 3384-3402 18 Interbedded; Sandstone, white, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common biotite, common muscovite and common chlorite. Slightly porous. With: interbedded, Siltstone, locally shaly, light to dark gray, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: common muscovite and rare pyrite.

3402-3427	25	Siltstone, locally finely sandy, locally shaly, light to dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common muscovite, rare pyrite, and common carbonaceous laminae.
3427-3442	15	Interbedded; Sandstone, white, clear, light gray, moderately cemented, fine-grained, well sorted, subrounded to subangular, siliceous, with: common muscovite, and rare pyrite. Slightly porous. With: interbedded; Siltstone, locally shaly, with: common muscovite, and rare pyrite.
3442-3489	47	Siltstone, locally finely sandy, locally shaly, light to dark gray, moderately hard, brittle, fair fissility, siliceous, argillaceous, with: common muscovite, and rare pyrite.
3489-3530	41	Shale, locally silty, light to dark gray, moderately hard, brittle, poorly fissile, calcareous, argillaceous, with: common muscovite, rare pyrite, and fossils, rare brachiopod fragments, rare crinoid stems.
3530-3591	61	Limestone, shaly, dark gray, moderately hard, fossil fragmental, rare crinoid stems, platy, with: rare pyrite.
3591-3605	14	Limestone, light to dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare pyrite.
3605-3610	5	Shale, medium gray to dark gray, moderately hard, brittle, poorly fissile, calcareous, argillaceous, with: rare pyrite, and fossils rare calamites fragments.
3610-3695	85	Limestone, shaly, light gray to light brown, moderately hard, fossil fragmental, common crinoids, rare brachiopods, no apparent bedding, cryptocrystalline, with: rare pyrite.
3695-3716	21	Limestone, light to dark gray, white, moderately hard, oolitic, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare pyrite.

3716-3958	242	Limestone, locally silty, light to dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare pyrite.
3958-3959	1	No sample
3959-4183	224	Limestone, locally silty, light to dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare pyrite.
4183-4189	6	Siltstone, light gray, medium gray, green, tan, moderately hard, brittle, poorly fissile, and siliceous.

GEOLOGIC SUMMARY

Mississippian System

Bluestone Formation	in	2045	
	bottom	2422	
Princeton Sandstone	top	2422	
	bottom	2605	
Hinton Formation	top	2605	
	bottom	3295	
Stony Gap Sandstone	top	3081	
	bottom	3295	
Bluefield Formation	top	3295	
	bottom	3530	
Greenbrier Limestone	top	3530	
	bottom	4183	
Maccrady Formation	top	4183	
	in	4189 (deepest sample)	

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

September 1963