

Company: United Producing Co., Inc.
 Farm: W. M. Ritter Lumber Co.
 Well No.: 9-V-1846
 Elevation: 1587.8' Gnd.
 Total Depth: 4443'
 Location: Buchanan County
 6075' N. of 37°20'
 9580' E. of 82°00'
 Drilling Commenced: 9/10/51
 Well Completed: 2/19/52
 Result: Dry hole

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

GEOLOGIC LOG

<u>Depth</u>	<u>Interval</u>	<u>Description</u>
0-1772	1772	No samples
1772-1777	5	Siltstone, locally finely sandy, rare light gray, <u>red</u> , moderately soft, flaky, no apparent bedding, argillaceous, ferruginous, with: common biotite, common muscovite, and rare carbonaceous material.
1777-1820	43	Siltstone, locally finely sandy, light gray, red, green, moderately soft, flaky, no apparent bedding, calcareous (locally), argillaceous, ferruginous, with: common biotite, common muscovite.
1820-1832	12	Siltstone, locally shaly, light to medium gray, red (rare), green (rare), moderately hard, brittle, no apparent bedding to poorly fissile, siliceous, argillaceous, with: abundant biotite, common muscovite and rare iron oxide stains.
1832-1845	13	Shale, silty, medium to dark gray, moderately soft, flaky, fair fissility, argillaceous, with: rare biotite, rare muscovite, rare pyrite, and common carbonaceous material.

1845-1869	24	Siltstone, locally finely sandy, light gray, dark gray, red, green, moderately soft, flaky, no apparent bedding, calcareous, argillaceous, with: rare biotite, rare muscovite, rare chert, and rare carbonaceous material.
1869-1883	14	Siltstone, locally finely sandy, light to dark gray, red(rare), green, moderately soft, brittle, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, common pyrite, rare carbonaceous material. With stringers of Sandstone, white, light gray, moderately cemented, very fine to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: common biotite, common muscovite, Nonporous to slightly porous.
1883-1923	40	Sandstone, silty, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: common biotite, common muscovite, and rare chert nodules.
1923-1930	7	Interbedded; Siltstone, locally finely sandy, light to dark gray, moderately soft, flaky, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, and abundant carbonaceous material. With Sandstone, as in 1883-1923.
1930-1946	16	Sandstone, white, clear, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: rare biotite, rare muscovite, and common iron oxide stains. Nonporous to slightly porous.
1946-1984	38	Interbedded Siltstone, locally finely sandy, medium to dark gray, moderately soft, flaky, no apparent bedding, siliceous, calcareous, argillaceous, with: abundant biotite, abundant muscovite, common carbonaceous material, and rare iron oxide stains. Sandstone, as in 1930-1946.

1984-2029	45	Sandstone, white, light gray, moderately cemented, very fine-to medium-grained, medium sorted, subrounded to angular, interstitially silty, siliceous, calcareous (slightly), with: common biotite, common muscovite, common feldspar (?), common carbonaceous material. Slightly porous. With stringers of Siltstone, locally finely sandy, light to medium gray, moderately hard, flaky, no apparent bedding, argillaceous, with: common biotite, common muscovite, and abundant carbonaceous material.
2029-2042	13	Siltstone, light gray, moderately soft, brittle, no apparent bedding, siliceous, argillaceous, with: abundant biotite, abundant muscovite, rare carbonaceous material, and abundant iron oxide stains.
2042-2055	13	Sandstone, white, clear, moderately cemented, very fine-to fine-grained, well sorted, subangular to angular, siliceous, with: rare biotite, rare muscovite, rare carbonaceous partings, and rare iron oxide stains. Nonporous to slightly porous.
2055-2059	4	No samples
2059-2091	32	Siltstone, locally shaly, light to dark gray, moderately hard, brittle, no apparent bedding to poorly fissile, argillaceous, with: common biotite, abundant muscovite, rare carbonaceous material, with minor stringers of Sandstone clear, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: rare biotite, rare muscovite, and rare iron oxide stains. Nonporous to slightly porous.
2091-2137	46	Shale, silty, medium to dark gray, moderately hard, brittle, fair fissility, argillaceous, with: rare biotite, and rare muscovite.
2137-2196	59	Siltstone, locally finely sandy, light to dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, and rare carbonaceous material.

- 2196-2230 34 Siltstone, locally finely sandy, light to dark gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, common pyrite. With stringers of Sandstone, white, clear, poorly cemented, very fine-to medium-grained, medium sorted, sub-rounded to subangular, siliceous, with: rare biotite, rare muscovite, rare pyrite, and rare iron oxide stains. Slightly porous.
- 2230-2252 22 Siltstone, medium to dark gray, moderately hard, tough, no apparent bedding, argillaceous, with: rare biotite, common muscovite, and common iron oxide stains. With stringers of Sandstone, white, clear, milky white, moderately cemented, fine-to medium-grained, well sorted, subrounded to subangular, siliceous, with: rare biotite, rare muscovite, and common iron oxide stains. Nonporous to slightly porous.
- 2252-2258 6 Sandstone, white, light gray, moderately cemented, fine-to medium-grained, well sorted, subrounded to angular, interstitially silty, siliceous, with: common biotite, common muscovite, and abundant iron oxide stains. Nonporous to slightly porous. Siltstone, locally finely sandy, light to medium gray, moderately soft, flaky, no apparent bedding, argillaceous, with: common biotite, common muscovite, common carbonaceous material, and common iron oxide stains.
- 2258-2283 25 Limestone, silty, light to dark gray, light brown, moderately soft, rare fossil fragments, no apparent bedding, cryptocrystalline to microcrystalline, with: common mica, common pyrite, rare calcite, and rare iron oxide staining.
- 2283-2297 14 Limestone, light to dark brown, moderately hard, rare fossil fragments, no apparent bedding, cryptocrystalline, with: rare mica, common pyrite, and abundant calcite.

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| 2297-2339 | 42 | Siltstone, locally shaly, light gray, red, moderately soft, flaky, no apparent bedding to poorly fissile, calcareous (slightly), argillaceous, ferruginous, with: rare biotite, rare muscovite, and rare pyrite. |
| 2339-2398 | 59 | Sandstone, white, light gray, poorly cemented, very fine-to fine-grained, well sorted, rounded to subangular, interstitially silty, siliceous, calcareous (locally), with: abundant biotite, abundant muscovite, rare iron oxide stains. Nonporous. With stringers of Siltstone, locally shaly, medium to dark gray, moderately hard, flaky, poorly fissile, argillaceous, with: rare biotite, rare muscovite, |
| 2398-2408 | 10 | Interbedded; Sandstone, white, clear, poorly cemented, fine-to medium-grained, well sorted, subrounded to angular, siliceous, with: rare biotite, rare muscovite, and rare carbonaceous material, rare iron oxide stains. Slightly porous. Siltstone, light to medium gray, red, tan, moderately hard, brittle, no apparent bedding, argillaceous, ferruginous, with: rare biotite, rare muscovite, and rare iron oxide stains. |
| 2408-2438 | 30 | Siltstone, light to medium gray, red, green, moderately soft, brittle, no apparent bedding, argillaceous, ferruginous, with: common biotite, common muscovite, and rare carbonaceous material. |
| 2438-2482 | 44 | Siltstone, red, moderately soft, flaky, no apparent bedding, ferruginous, with: rare biotite, rare muscovite, rare pyrite, and rare calcite. |
| 2482-2511 | 29 | Siltstone, locally shaly, light to medium gray, red, moderately soft, flaky, no apparent bedding to poorly fissile, argillaceous, ferruginous, with: rare biotite, rare muscovite, and rare iron oxide stains. |
| 2511-2519 | 8 | Interbedded; Sandstone, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, siliceous, with: rare biotite, rare muscovite, rare iron oxide stains. Nonporous to slightly porous. <u>Siltstone</u> , locally finely sandy, light gray, dark gray, red, green moderately soft, flaky, no apparent bedding, siliceous, argillaceous, common biotite, common muscovite, rare iron |

		oxide stains.
2519-2528	9	Siltstone, as in 2511-2519.
2528-2547	19	Interbedded; Sandstone and Siltstone, as in 2511-2519.
2547-2566	19	Interbedded; dolomite, calcareous, light to dark brown, moderately hard, no apparent bedding, cryptocrystalline, with: rare mica and Siltstone, light gray, dark gray, red, moderately soft, flaky, no apparent bedding, siliceous, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous material.
2566-2574	8	Interbedded; Siltstone, locally finely sandy, light to medium gray, red, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous material. Sandstone, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: rare biotite, rare muscovite, rare iron oxide stains. Nonporous to slightly porous.
2574-2582	8	No samples
2582-2737	155	Siltstone, locally shaly, light to medium gray, red, moderately hard, brittle, poorly fissile, siliceous, argillaceous, with: rare biotite, rare muscovite, and common pyrite.
2737-2743	6	Interbedded; Sandstone, white, light gray, moderately cemented; very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: common biotite, common muscovite, rare iron oxide stains. Nonporous to slightly porous. Siltstone, as in 2582-2737.
2743-2816	73	Siltstone, as in 2737-2743, with minor stringers of Sandstone, as in 2737-2743.
2816-2819	3	Interbedded; Sandstone, white, clear, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, siliceous, with: rare biotite, rare muscovite, rare iron oxide stains. Nonporous to slightly porous.

2816-2819	3 (cont)	Siltstone, medium to dark gray, red, green, moderately soft, flaky, no apparent bedding, argillaceous, with: rare biotite, rare muscovite, and rare iron oxide stains.
2819-2827	8	Siltstone, locally shaly, light to medium gray, moderately hard, brittle, no apparent bedding to poorly fissile, argillaceous, with: rare biotite, rare muscovite, common pyrite, and rare iron oxide stains.
2827-2845	18	Siltstone, locally finely sandy, red, green, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous material
2845-2937	92	Siltstone, locally shaly, light to medium gray, red (rare), green (rare), flaky, no apparent bedding to poorly fissile, calcareous (locally), argillaceous, with: common biotite, common muscovite, and abundant pyrite, rare carbonaceous material.
2937-2954	17	Siltstone, variegated, light to medium gray, red, green, white, black, moderately hard, flaky, no apparent bedding, siliceous, argillaceous, with: rare biotite, rare muscovite.
2954-2972	18	Siltstone, locally shaly, medium to dark gray, moderately hard, flaky, no apparent bedding to poorly fissile, argillaceous, with: rare biotite, rare muscovite, abundant pyrite, and common carbonaceous material.
2972-3014	41	Interbedded; Siltstone, as in 2954-2972. Sandstone, white to light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: common biotite, rare muscovite, common carbonaceous material, and rare iron oxide stains. Nonporous to slightly porous.
3014-3035	21	Shale, silty, medium to dark gray, moderately soft, flaky, fair to good fissility, argillaceous, with: rare muscovite, abundant pyrite.
3035-3097	62	Limestone, shaly, silty, light to dark gray, moderately soft, fossil fragmental (rare), no apparent bedding, microcrystalline, with: rare mica and common calcite.

3097-3112	15	No samples.
3112-3120	8	Limestone, impure, as in 3035-3078.
3120-3169	49	Limestone, silty, light to dark gray, light brown, tan, moderately hard, fossil fragmental, no apparent bedding, microcrystalline, with: rare mica, and common calcite.
3169-3189	20	Siltstone, medium to dark gray, moderately soft, brittle, no apparent bedding, calcareous, argillaceous, with: common biotite, common muscovite, abundant calcite, and fossil fragments.
3189-3210	21	Limestone, shaly, silty, light to dark gray, moderately hard, fossil fragmental, crinoid stems, no apparent bedding, cryptocrystalline to microcrystalline, with: common mica, rare pyrite, and abundant calcite.
3210-3230	20	Limestone, silty, light to dark gray, light brown, moderately hard, oolitic structure (abundant), fossil fragmental, no apparent bedding, microcrystalline, with: rare mica and abundant calcite.
3230-3246	16	Limestone, silty, light to dark gray, tan, white, moderately soft, oolitic (rare), fossil fragmental, no apparent bedding, cryptocrystalline to microcrystalline, with: rare mica, rare pyrite, and abundant calcite, common iron oxide staining.
3246-3256	10	Limestone, shaly, light gray, dark gray, black, moderately hard, oolitic (rare), fossil fragmental (rare), no apparent bedding, cryptocrystalline to microcrystalline, with: common mica, rare pyrite, and rare calcite.
3256-3257	1	No samples
3257-3274	17	Limestone, as in 3246-3256.
3274-3335	61	Limestone, light gray, light brown, tan, white, moderately hard, oolitic, fossil fragmental (rare), no apparent bedding, microcrystalline, with: rare mica, rare calcite, and rare iron oxide staining.

3335-3342	7	Limestone, tan, white, moderately soft, oolitic (locally), fossil fragmental (rare), no apparent bedding, cryptocrystalline, with: rare mica, and rare calcite.
3342-3359	17	Limestone, silty, light gray, light brown, tan, moderately hard, oolitic (rare), fossils (crinoid stems), no apparent bedding, cryptocrystalline to microcrystalline, with: rare mica, and common calcite.
3359-3395	36	Limestone, light to dark brown, white, moderately hard, oolitic, fossil fragmental (common crinoids), no apparent bedding, microcrystalline, with: rare mica, and common calcite.
3395-3502	107	Limestone, silty, light brown, tan, white, moderately soft, fossil fragmental (rare), no apparent bedding, cryptocrystalline to microcrystalline, with: rare mica, abundant calcite, and rare iron oxide staining.
3502-3503	1	No samples
3503-3594	91	Limestone, as in 3395-3502.
3594-3605	11	Siltstone, red, green, moderately soft, flaky, no apparent bedding, calcareous, argillaceous, ferruginous, with: rare biotite, rare muscovite, common chert, and rare calcite.
3605-3613	8	Siltstone, locally finely sandy, light gray, white, moderately hard, flaky, no apparent bedding, siliceous, argillaceous, with: rare biotite, rare muscovite, abundant carbonaceous material, and rare iron oxide stains.
3613-3691	80	Siltstone, variegated, locally finely sandy, light gray, red, green, tan, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, and common iron oxide stains.
3691-3714	23	Siltstone, locally finely sandy, red, moderately soft, flaky, no apparent bedding, argillaceous, ferruginous, with: rare biotite, rare muscovite, and rare carbonaceous material.

3714-3756	42	Siltstone, locally finely sandy, light to medium gray, red, green, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: rare biotite, common muscovite, rare carbonaceous material, and rare iron oxide stains.
3756-3802	46	Siltstone, locally finely sandy, light gray, medium gray, moderately soft, flaky, no apparent bedding, siliceous, argillaceous, with: abundant biotite, abundant muscovite, rare carbonaceous material, and rare iron oxide stains.
3802-3803	1	No samples.
3803-3821	18	Siltstone, locally finely sandy, locally shaly, medium to dark gray, moderately hard, brittle, no apparent bedding to poorly fissile, siliceous, argillaceous, with: abundant biotite, abundant muscovite, rare pyrite, and common iron oxide stains.
3821-3831	10	Interbedded; Sandstone, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: abundant biotite, abundant muscovite, common iron oxide stains. Nonporous to slightly porous. <u>Siltstone</u> , locally finely sandy, light to medium gray, moderately hard, flaky, no apparent bedding, argillaceous, with: abundant biotite, abundant muscovite, and common iron oxide stains.
3831-3840	9	Sandstone, as in 3821-3831.
3840-3858	18	Siltstone, locally finely sandy, light gray, dark gray, moderately soft, brittle, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, common pyrite, and common iron oxide stains.
3858-3958	100	Interbedded; Siltstone, locally finely sandy, light gray, white, moderately soft, flaky, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, abundant pyrite, rare carbonaceous material and rare iron oxide stains. <u>Shale</u> , locally silty, light to medium gray, moderately hard, brittle, poor to fair fissility, argillaceous, with: rare biotite, rare muscovite and common pyrite.

3958-4085	127	Shale, light gray to medium gray, red (rare - contamination ?) moderately soft, flaky, fair to good fissility, argillaceous, with: rare biotite, rare muscovite, and rare iron oxide stains.
4085-4238	153	Shale, as in 3958-4085, with stringers of Siltstone, locally finely sandy, light to medium gray, moderately hard, brittle, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite,
4238-4274	36	Interbedded; Shale, light gray, moderately soft, flaky, poor to fair fissility, argillaceous, with: rare biotite, rare muscovite. Siltstone, carbonaceous, dark gray, black, moderately soft, flaky, no apparent bedding to poorly fissile, argillaceous, with: rare biotite, rare muscovite, rare pyrite, abundant carbonaceous material, and abundant carbonaceous laminae.
4274-4297	23	Interbedded: Lithologies as in 4238-4274 with: Sandstone, white, light gray, well cemented, very fine-to fine-grained, well sorted, sub-founded to subangular, interstitially silty, siliceous, with: abundant biotite, common muscovite, rare iron oxide stains. Nonporous to slightly porous.
4297-4432	135	Siltstone, carbonaceous (locally), medium to dark gray, moderately hard, brittle, no apparent bedding to poorly fissile, argillaceous, with: rare biotite, rare muscovite, and common iron oxide stains.
4432-4443	11	No samples
4443' - T. D.		

GEOLOGIC SUMMARY

Mississippian System

Bluestone Formation	in	1772
	bottom	2042
Princeton Sandstone	top	2042
	bottom	2259
Hinton Formation	top	2259
	bottom	2819
Stony Gap Sandstone	top	2737
	bottom	2819
Bluefield Formation	top	2819
	bottom	3035
Greenbrier Limestone	top	3035
	bottom	3594
Maccrady-Price Formations	top	3594
	bottom	3858

Mississippian-Devonian Systems

Big Stone Gap Shale	top	3858
	bottom	4274

Devonian System

Devonian undivided	top	4274
	in	4432 (deepest sample)

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

September 1963