

Operator: Clinchfield Coal Company
 Farm: Isaac Cochran
 Well No: 205
 Location: Dickenson County, *Haysi rd*
 4.83 mi. S. of 37°15'
 0.10 mi. W. of 82°20'
 Elevation: 1356.3' Ground
 Total Depth: 5367' (5395' SLM)
 Drilling Commenced: 10/1/57
 Well Completed: 3/12/58
 Result: Gas Well

DK 51

Geologic Log
 Samples studied and described
 by: John M. Wilson
 Virginia Division of
 Mineral Resources
 November, 1962

GEOLOGIC LOG

<u>Depth</u>	<u>Interval</u>	<u>Description</u>
<u>Pennsylvanian System (0-1540)</u>		
<u>Pottsville Group (0-1540)</u>		
<u>Norton formation (0-575)</u>		
0 - 20	20	Siltstone, grayish-brown and black, soft, crumbly, locally finely sandy, siliceous, with: abundant mica and common carbonaceous lamanae.
20 - 65	45	<i>-kd.</i> Sandstone, clear to white and pale green, moderately hard, friable, fine-to medium-grained with rare coarse-grained, medium sorted, subangular to rounded, siliceous, with: abundant mica, and common chlorite. Nonporous to slightly porous.
65 - 83	18	Sandstone, clear to white, with tan and brown, moderately hard, friable, medium-to coarse-grained, medium sorted, subangular to rounded, interstitially silty, siliceous, locally calcareous, with: abundant mica, common carbonaceous streaks and matter, and minor stringers of Siltstone, carbonaceous, dark brown to black, moderately hard, flaky, locally finely sandy, siliceous, with: common coaly lamanae, and abundant mica.
83 - 140	57	Sandstone, white, tan, light green, hard, tough, fine-to coarse-grained, poorly sorted, subangular to subrounded, interstitially silty, siliceous, very slightly calcareous, with: common mica, common carbonaceous partings, and rare chlorite. Slightly porous.

140 - 150	10	Sandstone, clear to white and milky white, moderately hard, friable, fine-to medium-grained, medium sorted, subrounded to rounded, siliceous, with: common chlorite, common mica, and common carbonaceous partings. Nonporous.
150 - 151	1	Coal (Interpreted depth and thickness)
151 - 168	17	Sandstone, clear to white and light gray, moderately hard, friable, fine-grained, well sorted, rounded to well rounded, siliceous, with: abundant mica, and common carbonaceous partings. Nonporous to slightly porous.
168 - 209	41	Siltstone, medium to dark gray, black, brown, moderately hard, tough, locally poorly fissile, locally sandy, siliceous, with: rare mica.
209 - 218	9	Sandstone, clear to white, light brown, green, moderately soft, friable, fine-to medium-grained, medium sorted, subangular to subrounded, interstitially silty, siliceous, with: common mica, rare chlorite, and common carbonaceous partings. Nonporous to slightly porous.
218 - 221	<i>Raven 1</i> 3	Coal, moderately hard, in part slightly silty, (Interpreted depth and thickness)
221 - 230	9	Sandstone, as in 209 - 218.
230 - 237	7	Sandstone, clear to white, moderately hard, tough, very fine-to fine-grained, with common medium grained, medium sorted, subangular to rounded, interstitially silty, calcareous, with: common mica, and rare chlorite.
237 - 250	13	No samples
250 - 273	23	Sandstone, as in 230 - 237.
273 - 302	29	Sandstone, clear to white, hard, tough, fine-to medium-grained, medium sorted, subangular to subrounded, interstitially silty, siliceous, with: common mica, and common coaly carbonaceous partings.

302 - 329	27		Shale, dark gray to black, hard, flaky, fair fissility, locally silty, argillaceous, with: rare mica.
329 - 347	18		Sandstone, clear to white, moderately-hard, friable, fine-to medium-grained, medium sorted, subrounded to rounded, calcareous, with: abundant mica, and common carbonaceous streaks and partings. Nonporous to slightly porous.
347 - 381	34		Siltstone, white to brownish-gray and black, very hard, tough, locally poorly fissile, locally finely sandy, siliceous, with: abundant mica, and common carbonaceous lamanae and partings.
381 - 418	37	<i>cn</i>	Sandstone, clear to white with milky white, moderately soft, friable, fine-to coarse-grained, predominately medium-grained, poorly sorted, subangular to rounded, siliceous, with: rare mica, rare chlorite, and common coaly carbonaceous partings. Nonporous.
418 - 425	7		Siltstone, light to medium gray, very hard, tough, locally finely sandy, siliceous, with: common mica, and abundant carbonaceous lamanae and partings.
425 - 450	25	<i>cn</i>	Sandstone, as in 381 - 418.
450 - 472	22		Siltstone, argillaceous, dark gray to black, very hard, tough, locally fissile, with: rare mica.
472 - 494	22		Sandstone, clear to white, moderately hard, friable, fine-grained, well sorted, subrounded to well rounded, interstitially silty, siliceous, with: abundant mica.
494 - 575	81		Siltstone, light to medium gray and brownish-gray, hard, tough, locally finely sandy, slightly calcareous, with: rare mica, common pyrite, and common carbonaceous lamanae and partings.
<u>Lee formation (575-1540)</u> 575 - 595	20	<i>cn</i>	Siltstone, as in 494 - 575, with stringers of Sandstone, white to light gray, and light brownish-gray, moderately soft, friable, very fine-to fine-grained, well-sorted, subangular to subrounded, interstitially silty, calcareous, with: rare mica, and common carbonaceous lamanae. Nonporous

595 - 602	7		Shale, coaly carbonaceous, black, hard, tough, locally fissile, argillaceous, with: abundant coaly lamanae and partings.
602 - 627	25		Siltstone, light to dark gray, very hard, tough, siliceous, with: rare mica.
627 - 677	✓ 50	CH	* Sandstone, clear to white, moderately hard, brittle, fine-to medium-grained, medium sorted, angular to subrounded, siliceous, with: rare mica, and rare chlorite, Nonporous to slightly porous.
677 - 695	✓ 18	CH	* Sandstone, conglomeratic, clear to white, and milky white, moderately hard, friable, fine-to coarse grained, with abundant granule-sized, poorly sorted, subangular to subrounded, interstitially silty, calcareous, with: rare mica, and common silty-micaceous partings. Nonporous to slightly porous.
695 - 700	5		Interbedded: Sandstone, white to light gray and greenish-gray, moderately soft, friable, very fine-to fine-grained, medium sorted, subrounded, interstitially silty, siliceous, with: abundant mica. Nonporous: with: Siltstone, light to dark gray, hard, tough, siliceous, with: common coaly lamanae, and common mica.
700 - 701	1		Coal, silty. (Interpreted depth and thickness)
701 - 714	13		Interbedded; Sandstone and Siltstone, as in 695 - 700.
714 - 746	32	CH	Sandstone, white and milky white, moderately soft, friable, fine-to coarse-grained, poorly sorted, subangular to subrounded, siliceous, locally slightly calcareous, with: rare mica, rare chlorite, and common silty-micaceous partings.
746 - 747	1		Coal, pure (Interpreted depth and thickness)
747 - 754	7	CH	Sandstone, as in 714 - 746.

754 - 764	10	LK	Sandstone, conglomeratic, white to clear, moderately soft, friable, medium-to coarse-grained, with abundant granule-sized, medium sorted, subrounded, siliceous, locally slightly calcareous. Nonporous.
764 - 778	14	2K	Sandstone, clear to white, and light brownish-gray, moderately soft, friable, fine-to medium grained, medium sorted, subangular to subrounded, interstitially silty, siliceous, locally calcareous, with: abundant mica, and common chlorite. Nonporous to slightly porous.
778 - 798	20		Siltstone, light to dark gray and black, moderately hard, brittle, locally finely sandy, siliceous, with: common mica, and abundant silty-coaly carbonaceous material.
798 - 816	18	CH	Sandstone, white to light gray, hard, tough, very fine-to fine-grained, well sorted, subrounded to well rounded, calcareous, with: rare mica, and common silty-coaly carbonaceous material. Nonporous.
816 - 830	14		Siltstone, light to dark gray and black, very hard, tough, locally finely sandy, siliceous, with: common mica, and abundant silty-coaly carbonaceous lamanae and partings.
830 - 843	13		Sandstone, white to light brown, hard, tough, very fine-to fine-grained, medium sorted, subrounded to rounded, interstitially silty, siliceous, with: abundant carbonaceous streaks, and common mica. Nonporous to slightly porous. Contains minor stringers of Siltstone, medium to dark gray, hard, tough, siliceous, with: common mica.
843 - 856	13		No samples
856 - 884	28		Sandstone, with Siltstone, stringers, as in 830 - 843.

884 - 914	30	Sandstone, clear to white and "dirty white," moderately soft, friable, fine-to medium-grained, medium sorted, subangular to subrounded, siliceous, with: common chlorite, common mica, and abundant silty-micaceous partings. Nonporous.
914 - 945	31	Sandstone, as in 884 - 914, with stringers of Siltstone, dark gray to black, hard, tough, siliceous, with: common mica.
945 - 991	46	<i>CR</i> Sandstone, clear to white, moderately hard, tough, fine-to medium-grained, well sorted, subangular to rounded, locally slightly calcareous, with: rare mica, and rare silty-micaceous partings. Nonporous.
991 - 1030	39	<i>CR</i> Sandstone, conglomeratic, clear to white, moderately hard, friable, very fine-to coarse-grained, and common granule sized, poorly sorted, subrounded to well rounded, siliceous, with: common mica, and rare chlorite. Nonporous to slightly porous.
1030 - 1036	6	Siltstone, medium to dark gray and brown, hard, tough, locally fissile, locally finely sandy, siliceous, with: common mica, and common coaly carbonaceous material.
1036 - 1053	17	Interbedded; Siltstone, as in 1030-1036, with; Sandstone, clear to white and milky white, moderately soft, friable, fine-to coarse-grained, poorly sorted, subangular to subrounded, interstitially silty, slightly calcareous, with: common mica, and common carbonaceous streaks. Nonporous.
1053 - 1076	23	Shale, dark gray to black, moderately hard, flaky, fair fissility, locally slightly silty, argillaceous, with: common mica.
1076 - 1113	37	Interbedded: Siltstone, light to dark gray, very hard, tough, locally poorly fissile, siliceous, with: abundant mica, and common carbonaceous lamanae, with; Sandstone, clear to white, moderately soft, friable, fine-to medium-grained, medium sorted, subangular to subrounded, interstitially silty, calcareous, with: abundant mica, and common coaly carbonaceous partings. Nonporous.

1113 - 1145	32	Siltstone, carbonaceous, black, and brownish-gray, moderately soft, flaky, locally finely sandy, siliceous, with: abundant coaly lamanae and partings, and common mica.
1145 - 1235	90	Shale, carbonaceous, black, hard, tough, fair fissility, locally silty and siliceous, argillaceous, with: common mica, and rare coaly lamanae. Contains minor stringers of Siltstone, light to dark gray, moderately hard, tough, locally finely sandy, siliceous, with: common mica.
1235 - 1275	40	Siltstone, argillaceous, light to dark gray, hard, tough, locally poorly fissile, locally finely sandy, siliceous, grades locally to shale, with; rare mica.
1275 - 1317	42	Siltstone, as in 1235 - 1275, with; minor stringers of Sandstone, white to light gray, moderately soft, friable, very fine-to fine-grained, medium sorted, subrounded to rounded, interstitially silty, calcareous, with; common mica, and rare chlorite. Nonporous.
1317 - 1383	66	Sandstone, conglomeratic, clear to white with light gray, moderately soft, friable, fine-to medium-grained with granule sized, medium sorted, subangular to subrounded, interstitially silty, locally slightly calcareous, with: abundant mica, and rare chlorite. Nonporous.
1383 - 1392	9	Sandstone, clear to white and milky white, moderately soft, friable, medium-to very coarse-grained, poorly sorted, angular to subrounded, siliceous, with: common mica, and common micaceous-silty-coaly partings. Nonporous to slightly porous.
1392 - 1417	✓ 25 CK	* Sandstone, clear to white, moderately hard, friable, fine-to medium-grained, well sorted, subangular to rounded, siliceous, with: rare mica, and rare chlorite. Nonporous.
1417 - 1440	23	Siltstone, light to dark gray and black, hard, tough, locally poor fissile, locally finely sandy, siliceous, with: rare mica, rare carbonaceous lamanae and partings.

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1440 - 1445	5	CH-X Sandstone, clear to white, moderately hard, friable, fine-to coarse-grained, poorly sorted, subangular, siliceous, with: rare mica. Nonporous
1445 - 1466	21	Coal, black, soft, locally silty, contains rare plant fossils.
1466 - 1512	46	CH-X Sandstone, clear to white, moderately soft, friable, fine-to medium-grained, medium sorted, subangular to subrounded, interstitially silty, siliceous, with: rare mica. Nonporous.
1512 - 1540	28	CH-X Sandstone, conglomeratic, clear to white and milky white, moderately hard, friable, medium to very coarse-grained, granule sized, poorly sorted, interstitially silty, siliceous, locally slightly calcareous, with: rare mica, and rare silty-carbonaceous partings. Nonporous.
<u>Mississippian System (1540-3659)</u>		
<u>Pennington Group (1540-2736)</u>		
<u>Bluestone formation (1540-2075)</u>		
1540 - 1621	81 ^{82.7'}	Siltstone, light to dark gray, hard, tough, locally poorly fissile, locally finely sandy, calcareous, with: common mica, common pyrite, and common carbonaceous partings. <i>Poer</i>
1621 - 1634	13 ^{13.3}	Siltstone, medium to dark gray, and <u>red</u> , hard, tough, locally poorly fissile, argillaceous, calcareous, with: common mica.
1634 - 1743	109 ^{111.3}	Siltstone, predominately red with light green, and light gray, very hard, tough, siliceous, locally calcareous, with: rare mica.
1743 - 1770	27 ^{27.5}	Sandstone, white to light gray, hard, tough, very fine -to fine-grained, well sorted, subangular to subrounded, interstitially silty, siliceous, locally calcareous, with: rare mica, and rare carbonaceous streaks. Nonporous to slightly porous.
1770 - 1820	50 ^{51.0}	Interbedded; Sandstone, as in 1743 - 1770, with; Siltstone, light to dark gray and black, moderately hard, flaky, locally fissile, locally finely sandy, siliceous, with: common mica, and common carbonaceous lamanae and partings.
1820 - 1885	65 ^{66.3}	Siltstone, medium to dark gray, moderately hard, tough, locally poorly fissile, with: rare mica, and common carbonaceous partings.

1885 - 2075	190	193-9	Shale, dark gray to black, hard, tough, fair to good fissility, locally silty, locally slightly calcareous, with: common mica.
<u>Princeton sandstone</u> (2075-2255)			
2075 - 2141	66	67.3	Interbedded; Siltstone, light to dark gray and black, red, and brownish-gray, moderately soft, flaky, locally finely sandy, siliceous, with: rare mica, and abundant coaly lamanae, with; Sandstone, clear to white and light gray, moderately hard, flaky, very fine-to fine-grained, medium sorted, subangular, interstitially silty, calcareous, with: common mica, and common carbonaceous streaks. Nonporous to slightly porous.
2141 - 2158	17	17.3	Sandstone, clear to white, moderately hard, friable, fine-to medium-grained, well sorted, subangular to subrounded, calcareous, with: minor stringers of Siltstone, medium-green, moderately soft, crumbly, siliceous, with: rare mica. Nonporous to slightly porous.
2158 - 2171	13	17.2	Sandstone, clear to white and milky white, moderately hard, brittle, fine-to very coarse-grained, poorly sorted, interstitially silty, calcareous, with: rare mica, and minor stringers of Siltstone, as in 2141 - 2158. Nonporous.
2171 - 2211	40	40.8	Sandstone, conglomeratic, white and milky white, hard, tough, fine-to very coarse-grained, with common granule size, poorly sorted, subangular, interstitially silty, calcareous, with: common mica, and common coaly carbonaceous partings. Nonporous.
2211 - 2255	44		Siltstone, variegated, light to dark gray, red, pale green, and white, moderately hard, brittle, locally finely sandy and siliceous, calcareous, locally clayey, with: common mica and common carbonaceous lamanae and partings.
<u>Hinton formation</u> (2255-2736)			
2255 - 2282	27		Siltstone, red, with rare light green, hard, tough, locally poorly fissile, siliceous, with: common mica, rare pyrite, and minor stringers of Limestone, dark gray, moderately hard, fine-grained, microcrystalline.

2282 - 2328	46	Interbedded; Siltstone, variegated, red, dark gray to black, and pale green, very hard, tough, calcareous, with: common mica, and common carbonaceous lamanae, with; Sandstone, light gray, hard, tough, very fine-grained, well sorted, subrounded, interstitially silty, calcareous, with: abundant mica, and common black mineral. Nonporous.
2328 - 2334	6	Siltstone, light to dark gray, maroon, light green, hard, tough, locally finely sandy, calcareous, with: rare mica, and abundant carbonaceous lamanae and partings.
2334 - 2338	4	No samples
2338 - 2370	32	Interbedded; Sandstone, clear to white, moderately hard, friable, fine-grained, well sorted, subangular to rounded, calcareous, with: common mica, rare pyrite, and common carbonaceous streaks. Nonporous. With; Siltstone, light to dark gray and black, very hard, tough, locally calcareous, with: common mica.
2370 - 2405	35	Siltstone, variegated, light to dark gray, black, red, and light green, moderately soft, crumbly, locally poorly fissile, calcareous, with: rare mica, and stringers of Dolomite, light brown, hard, tough, microcrystalline.
2405 - 2428	23	Sandstone, clear to white, moderately soft, friable, very fine-to medium-grained, poorly sorted, subangular, interstitially silty, siliceous, locally slightly calcareous, with: common mica, common pyrite, common chlorite, and minor stringers of Siltstone, light to medium gray, moderately hard, tough, locally finely sandy, with: rare mica. Nonporous.
2428 - 2465	37	Siltstone, light to dark gray, maroon-drab, hard, tough, locally finely sandy, siliceous, with: rare mica.
2465 - 2500	35	Interbedded; Shale, carbonaceous, black moderately soft, crumbly, fair fissility, argillaceous, with: common pyrite, with; Sandstone, clear to white, moderately soft, friable, very fine-to medium-grained, medium sorted, subangular to subrounded, calcareous, with: rare mica. Nonporous. With; Siltstone, light to dark

gray, hard, locally finely sandy, siliceous, with:
rare mica.

2500 - 2589	89	Siltstone, variegated, light to dark gray, light green, maroon-drab, moderately hard, tough, locally poorly fissile, locally finely sandy, calcareous, with: rare mica, common pyrite, rare coaly carbonaceous partings, and with minor stringers of Sandstone, as in 2465-2500.
2589 - 2602	13	Siltstone, variegated, as in 2500 to 2588, with: stringers of Sandstone, white to light gray, moderately soft, friable, very fine-to fine-grained, well sorted, subrounded to rounded, interstitially silty, with: rare mica.
<u>Stony Gap sandstone member (2602-2736)</u>		
<u>2602 - 2655</u>	<u>53</u>	Sandstone, white, light green, light to medium gray, hard, tough, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: rare mica, rare pyrite, common silty-micaceous partings, and minor stringers of Siltstone, light to dark gray, moderately hard, tough, locally finely sandy, with: abundant mica. Nonporous.
2655 - 2678	23	Siltstone, variegated, medium to dark gray, light to dark green, rare red, moderately soft, brittle, locally fissile, locally finely sandy, locally calcareous, with: rare mica, and rare carbonaceous lamanae and partings.
2678 - 2688	10	Sandstone, clear to white, moderately hard, tough, fine-to medium-grained, well sorted, subangular to subrounded, calcareous, with: common silty-micaceous partings. Nonporous.
2688 - 2736	48	Siltstone, variegated, medium to dark gray and black, medium green, red, hard, tough, locally fissile, siliceous, with: rare mica, common coaly carbonaceous lamanae and partings, rare pyrite, and with minor stringers of Sandstone, as in 2678 - 2688.
<u>Bluefield formation (2736-2855)</u>		
<u>2736 - 2751</u>	<u>15</u>	Shale, medium to dark gray and black, hard, tough, fair fissility, locally silty, calcareous, with: rare coaly carbonaceous lamanae and partings.

2751 - 2790	39	Siltstone, light to dark gray, brownish-gray, green, moderately soft, brittle, locally poorly fissile, locally finely sandy, calcareous, with: stringers of Limestone, dolomite, dark gray to black, moderately hard, tough, cryptocrystalline
2790 - 2808	18	Siltstone, as in 2751-2790, without stringers of Limestone.
2808 - 2825	17	Sandstone, white, moderately hard, tough, very fine-to fine-grained, well sorted, subrounded to rounded, interstitially silty, siliceous, with: common mica, and common pyrite,. Nonporous.
2825 - 2855	30	Siltstone, light to dark gray and black, light green, moderately hard, tough, locally poorly fissile, siliceous, with: common mica, abundant pyrite, and common coaly carbonaceous lamanae and partings.
<u>Greenbriar limestone (2855-3495)</u>		
2855 - 2875	20	Shale, calcareous, dark gray to black, moderately hard, tough, fair fissility, locally silty, with: rare mica.
2875 - 2913	38	Limestone, argillaceous, dark gray to black, moderately soft, rare oolites, fossiliferous (Bryozoa and Crinoids indentified), cryptocrystalline, locally silty, with: rare pyrite.
2913 - 2954	41	Limestone, as in 2875 - 2913, with Limestone, light to medium gray and olive, moderately soft, very fossiliferous, fine-grained, microcrystalline, with: rare pyrite.
2954 - 2992	38	Limestone, white, light to dark gray, and brown, hard, oolitic, fossiliferous, fine-grained, microcrystalline, with: abundant calcite.
2992 - 3022	30	Limestone, black, brownish-black, moderately soft, fossiliferous, fine-grained, cryptocrystalline, with: common calcite, and rare pyrite.
3022 - 3077	55	Limestone, tan to brown, black, greenish-gray, and buff, locally oolitic, fossil fragmental, moderately soft, crumbly, very fine-grained, cryptocrystalline, with: rare pyrite, and abundant calcite.

3077 - 3123	46	Limestone, olive-drab, black, and beige, oolitic, fossiliferous, moderately soft, fine-grained, microcrystalline, with: rare calcite.
3123 - 3128	5	No samples.
3128 - 3189	71	Limestone, as in 3077-3123.
3189 - 3234	45	Limestone, beige, dark gray to black, olive, oolitic, rare fossils, moderately hard, fine-grained, microcrystalline, with: rare calcite.
3234 - 3311	77	Limestone, olive, beige, white, fossiliferous, moderately hard, very fine-grained, cryptocrystalline, with: common calcite.
3311 - 3463	152	Limestone, white to olive, light to dark gray, locally oolitic, fossiliferous, hard, fine-grained, microcrystalline, with: rare calcite.
3463 - 3495	32	Limestone, white, tan, light gray, locally oolitic, hard, fine-grained, microcrystalline, with: abundant chert.
<u>Maccrady Formation (3495 - 3588)</u>		
3495 - 3518	23	Siltstone, red, maroon-drab, hard, tough, locally very finely-sandy, siliceous, slightly calcareous, with: rare mica, and common chert.
3518 - 3559	41	Siltstone, red, maroon-drab, light gray, very hard, tough, locally very finely-sandy, siliceous, with: common mica.
3559 - 3576	17	No samples
3576 - 3588	12	Siltstone, as in 3518-3559.
<u>Price Siltstone (Sandstone) (3588 - 3659)</u>		
3588 - 3622	34	Sandstone, silty, light to dark gray and black, hard, tough, very fine-to fine-grained, medium sorted, rounded, interstitially silty, siliceous, with: common mica, and common coaly carbonaceous material. Nonporous.
3622 - 3659	37	Siltstone, medium to dark gray, moderately hard, flaky, locally fissile, locally finely sandy, slightly calcareous, siliceous, with: rare mica.

Mississippian-Devonian Systems / 3659-(4092-4100) /

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Big Stone Gap shale / 3659-(4092-4100) /

3659 - 3667	8	Siltstone, light to medium gray, hard, tough, locally finely sandy, siliceous, with: rare mica, and rare pyrite.
3667 - 3729	62	Shale, silty, light to medium gray, with rare reddish-brown, hard, tough, poor fissility, locally siliceous, argillaceous, with: rare mica, and rare pyrite.
3729 - 3739	10	No samples
3739 - 3781	42	Shale, as in 3667 - 3729
3781 - 3883	102	Shale, carbonaceous, black, moderately soft, flaky, good fissility, locally siliceous, argillaceous, with: common pyrite, and rare mica.
3883 - 3947	64	Siltstone, medium gray to black, brownish-gray, moderately hard, tough, locally poorly fissile, locally slightly argillaceous, siliceous, with: common mica.
3947 - 3957	10	No samples
3957 - 3977	20	Siltstone, as in 3883 - 3947.
3977 - 4006	29	Shale, medium to dark gray, brownish-gray, black, hard, tough, fair fissility, locally silty, argillaceous, with: common pyrite, and rare mica.
4006 - 4022	16	Shale, carbonaceous, black, with dark gray and brownish-gray, moderately soft, flaky, good fissility, locally silty, argillaceous, with: common pyrite.
4022 - 4032	10	No samples
4032 - 4045	13	Shale, as in 4022 - 4032.
4045 - 4062	17	Interbedded; Shale, carbonaceous, black, moderately soft, flaky, good fissility, locally silty, argillaceous, with: rare pyrite, with; Siltstone, light to dark gray, moderately hard, tough, locally finely sandy, siliceous, with: common mica.
4062 - 4068	6	No samples

4062 - 4092	24	Interbedded Shale and Siltstone, as in Devonian System / (4092-4100)-T. D. 4045 - 4062.
<u>4092 - 4100</u>	8	<u>Devonian shales / (4092-4100)-T. D. /</u> No samples
4100 - 4144	44	Siltstone, brownish-gray, light to dark gray and black, hard, tough, locally finely-sandy, siliceous, locally calcareous, with: common mica, rare pyrite, and with: minor stringers of Shale, black, moderately soft, flaky, fair fissility, locally silty, argillaceous, with: rare mica.
4144 - 4145	1	No samples
4145 - 4158	13	Siltstone, with Shale stringers, as in 4100 - 4144.
4158 - 4190	32	Siltstone, carbonaceous, black, with some light to medium gray, moderately hard, tough, locally finely sandy, siliceous, with: abundant mica.
4190 - 4191	1	No samples
4191 - 4211	20	Siltstone, as in 4158 - 4190.
4211 - 4355	144	Siltstone, light brown, light to dark gray, black, with, rare red, moderately soft, flaky, locally poorly fissile, locally finely sandy, siliceous, with: rare mica, and stringers of Shale, medium gray, moderately hard, tough, fair fissility, argillaceous, with: rare mica.
4355 - 4367	12	No samples
4367 - 4494	127	Siltstone with Shale stringers, as in 4211 - 4355,
4494 - 4630	136	Siltstone with Shale stringers, as in 4211-4355, with: common pyrite.
4630 - 4805	175	Shale, silty, light to dark gray with black, moderately soft, flaky, poor to fair fissility, locally finely sandy, argillaceous, with: common mica, grades locally to siltstone.
4805 - 4875	70	Shale, carbonaceous, black, hard, tough, fair fissility, locally slightly silty, argillaceous, with: rare mica.

4875 - 4967	92	Shale, silty, light gray and black, hard, tough, poor to fair fissility, locally finely sandy, argillaceous, with: common mica, abundant pyrite. (Light gray Shale contains minor dolomite -- X-ray diffraction)
4967 - 5065	98	Shale, carbonaceous, black, moderately, hard, flaky, fair fissility, locally silty and siliceous, argillaceous, with: abundant mica, and rare pyrite.
5065 - 5094	29	Shale, silty, light gray to black, and brownish-gray, moderately hard, tough, poor fissility, locally finely sandy and siliceous, argillaceous, with: common mica, and rare pyrite.
5094 - 5098	4	No samples
5098 - 5115	17	Shale, as in 5065 - 5094.
5115 - 5170	55	Interbedded; Shale, as in 5065-5094, with; Siltstone, light gray, beige, and reddish-brown, very hard, tough, locally very finely sandy, siliceous, with: rare mica.
5170 - 5180	10	Interbedded Shale and Siltstone, as in 5015-5170, but without reddish-brown Siltstone.
5180 - 5185	5	No samples
5185 - 5222	37	Interbedded Shale and Siltstone, as in t 5170-5180
5222 - 5228	6	No samples
5228 - 5243	15	Interbedded Shale and Siltstone, as in 5170-5180.
5243 - 5254	11	Shale, medium gray to black, moderately soft, flaky, good fissility, locally silty, argillaceous, with: common mica, common pyrite, common calcite (white, silicified, occurs possibly as vein fillings), and common coal lamanae and partings.
5254 - 5275	21	No samples
5275 - 5352	77	Shale, as in 5243 - 5254.
5352 - 5363	11	Limestone, light brown, dark gray, to black, moderately hard, flaky, fine-grained, micro-crystalline, with: common pyrite, and common

white silicified calcite.

5363 - - TOTAL DEPTH.

Operator: Clinchfield Coal Company
 Farm: Isaac Cochran
 Well No.: 205

Location: Dickenson County
 4.83 mi. S. of 37°15'
 0.10 mi. W. of 82°20'

Elevation: 1356.3' Ground

Total Depth: 5367' (5395' SLM)

Drilling Commenced: 10/1/57

Well Completed: 3/12/58

Result: Gas Well

Coal: 30'-31', 150'-151', 218'-220', 690'-692', 1420'-1421'

Water: 35'

Gas Show: 690', 1765', 2140', 3260', 5260'

Geologic Log
 Samples studied and described
 by: John M. Wilson
 Virginia Division of
 Mineral Resources
 November, 1962

Pennsylvanian System (0-1540')

Pottsville Group (0-1540')

Norton formation (0-575')

Lee formation (575'-1540')

Mississippian System (1540'-3659')

Pennington Group (1540'-2736')

Bluestone formation (1540'-2075')

Princeton sandstone (2075'-2255')

Hinton formation (2255'-2736')

Stony Gap sandstone member (2602'-2736')

Bluefield formation (2736'-2855')

Greenbriar limestone (2855'-3495')

Maccrady formation (3495'-3588')

Price formation (3588'-3659')

Mississippian-Devonian Systems [3659'-(4092'-4100')]

Big Stone Gap shale [3659'-(4092'-4100')]

Devonian System [(4092'-4100')-T. D.]

Devonian shales and siltstones [(4092'-4100')-T. D.]

GEOLOGIC SUMMARY

Pennsylvanian System

Norton Formation	in bottom	surface 575
Lee Formation	top bottom	575 1621

Mississippian System

Bluestone Formation	top bottom	1621 2075
Princeton Sandstone	top bottom	2075 2255
Hinton Formation	top bottom	2255 2655
Stony Gap Sandstone	top bottom	2500 2655
Bluefield Formation	top bottom	2655 2875
Greenbrier Limestone	top bottom	2875 3495
Maccrady - Price Formations	top bottom	3495 3781

Mississippian-Devonian Systems

Big Stone Gap Shale	top bottom	3781 4096
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Devonian—Pre-Devonian Systems

Devonian—Pre-Devonian undivided	top (sampled depth 5363)	4096
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Correlations by: J. M. Wilson and R. C. Milici

September 1963

Loc 102, 112
30
97

Dickenson County
Isaac Cochran
205

T.	R.

I. No. 12 COMPANY
Elev. 1356 NO.

COMMENCED: about 20' above
RA. coal
COMPLETED

ELEVATION

REMARKS Location indicator

PRODUCTION

well spudded below
lower Banner coal.

FORM 187 - For Sale by Ross-Martin Co., Tulsa

