

Operator: Clinchfield Coal Company
 Farm: J. W. Wright *DK 56*
 Well No. 212 *HAYS*
 Location: Dickenson County
 6550' S. of 37°10'
 5600' W. of 82°20'
 Elevation: 1600.0' Ground
 Total Depth: 5628' (5616' SLM)
 Drilling Commenced: 6/5/58
 Well Completed: 2/15/59
 Result: Gas Well

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

GEOLOGIC LOG

<u>Depth (Interval)</u>	<u>Interval</u>	<u>Description</u>
<u>Pennsylvanian System (0-1865)</u>		
<u>Pottsville Group (0-1865)</u>		
<u>Norton formation (0-862)</u>		
0 - 75	75	No samples
75 - 84	9	Siltstone, medium to dark gray, and brown, moderately soft, flaky, locally finely sandy, siliceous, with: abundant mica.
84 - 90	6	Siltstone, carbonaceous, black, hard, tough, locally poorly fissile, siliceous and argillaceous, with: common mica, and common coaly lamanae and partings.
90 - 115	25	Siltstone, light to dark gray, brownish-gray, moderately hard, tough, locally poorly fissile, siliceous, and argillaceous, with: rare mica, and rare coaly lamanae and partings.
115 - 116	1	Coal, in part silty and impure (Interpreted depth and thickness)
116 - 137	21	Sandstone, white, light gray, moderately cemented, medium-grained, well sorted, angular to subangular, interstitially silty, siliceous, with: abundant mica (biotite and muscovite), common chlorite, and minor stringers of Siltstone, as in 90 to 115. Nonporous to slightly porous.
137 - 140	3	Shale, dark gray, moderately hard, flaky, poor to fair fissility, locally silty and siliceous, argillaceous, with: rare mica.

140 - 150	10	No samples
150 - 190	40	Siltstone, light brownish-gray, medium to dark gray, very hard, tough, locally finely sandy, siliceous and calcareous, with: common mica (biotite and muscovite)
190 - 200	10	Siltstone, light brownish-gray, medium gray, hard, tough, locally finely sandy, calcareous, with: common mica, and common carbonaceous streaks.
200 - 208	8	Siltstone, as in 190-200, but very calcareous.
208 - 214	6	Siltstone, light to dark gray, black, hard, tough, locally poorly fissile, locally finely sandy, siliceous and argillaceous, with: common mica (biotite and muscovite), and common carbonaceous streaks.
214 - 221	7	Sandstone, clear to white, light brown, poorly cemented, fine to medium-grained, medium sorted, subrounded to subangular, interstitially silty, siliceous, with: abundant mica (biotite and muscovite), rare pyrite, rare feldspar, rare chlorite, and common carbonaceous streaks and partings. Slightly porous.
221 - 230	9	Shale, silty, light to dark gray, very hard, tough, poor to fair fissility, argillaceous and siliceous, with: rare mica.
230 - 237	7	Sandstone, white to light brownish-gray, poorly cemented, very fine-to medium-grained, medium sorted, subrounded to subangular, interstitially silty, siliceous, with: abundant mica (biotite and muscovite), rare chlorite, and common carbonaceous streaks and partings. Slightly porous to porous.
237 - 240	3	Sandstone, colorless to white and milky white, friable, fine-to medium-grained, with rare coarse-grained, medium sorted, subangular to rounded, calcareous and siliceous, with: abundant mica (muscovite and biotite). Slightly porous.

240 - 257	17	Sandstone, as in 237-240, with: rare pyrite, and common carbonaceous streaks and partings.
257 - 268	11	Sandstone, as in 240-257, with abundant iron-staining (probably bit particles)
268 - 281	13	Interbedded; Siltstone, light to dark gray and black, moderately hard, flaky, locally finely sandy, siliceous, with: common mica, with; Sandstone, white to light gray, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, interstitially silty, siliceous, with: common mica, and rare chlorite. Nonporous to slightly porous.
281 - 301	20	Siltstone, light to dark gray, moderately soft, flaky, locally finely sandy, siliceous, with: abundant mica, common carbonaceous streaks, and minor stringers of Sandstone, as in 268-281.
301 - 305	4	Siltstone, light brown, dull red, orange, medium to dark gray, moderately soft, crumbly, locally finely sandy, siliceous, with: common mica, rare pyrite, and rare coarse-grained, iron stained quartz grains (contamination ?).
305 - 319	14	No samples
319 - 323	4	Interbedded; Siltstone, light to dark gray and black, moderately hard, tough, locally very finely-sandy, siliceous, with: rare mica, and common carbonaceous streaks, with; Sandstone, clear to white and light gray, poorly cemented, very fine-to fine-grained, medium sorted, subangular to rounded, interstitially silty, siliceous, with: common mica (biotite and muscovite). Nonporous to slightly porous.
323 - 339	16	Sandstone, white to light gray, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare mica, and common silty-micaceous partings. Nonporous to slightly porous.

339 - 349	10	Sandstone, as in 323 to 339, with stringers of Siltstone, medium to dark gray, moderately hard, flaky, locally poorly fissile, siliceous and argillaceous, with: common mica, and common coal lamanae and partings.
349 - 350	1	Coal, in part silty and impure (Interpreted depth and thickness).
350 - 351	1	No samples
351 - 354	3	Sandstone, white to light gray, poorly cemented, very fine-to fine-grained, medium sorted, sub-angular to subrounded, siliceous, locally calcareous, with: common mica (biotite and muscovite), ^{and} rare chlorite. Nonporous.
354 - 359	5	No samples
359 - 366	7	Sandstone, clear to white, light gray, and milky white, moderately cemented, very fine-to very coarse-grained, poorly sorted, subangular to subrounded, siliceous, locally very slightly calcareous, with: common mica (biotite and muscovite), and abundant silty-micaceous partings. Nonporous to slightly porous.
366 - 377	11	Sandstone, clear to white, friable, fine-to very coarse-grained, predominately medium to coarse-grained, poorly sorted, angular to subrounded, siliceous, with: rare mica (muscovite), and rare chlorite. Nonporous to slightly porous.
377 - 382	5	Siltstone, light to dark gray, brownish-gray, moderately hard, tough, locally poorly fissile, siliceous and argillaceous, with: abundant mica (biotite and muscovite), and common carbonaceous streaks.
382 - 386	4	No samples
386 - 399	13	Siltstone, light to medium gray, moderately hard, tough, locally finely sandy, siliceous, with: abundant mica (biotite and muscovite), and abundant carbonaceous streaks.

399 - 410	11	Siltstone, light to dark gray, black, hard, tough, locally poorly fissile, locally finely sandy, argillaceous and siliceous, with: abundant mica (biotite and muscovite), and common carbonaceous streaks.
410 - 442	32	Shale, silty, dark gray to black, dark brown, moderately hard, flaky, poor to fair fissility, locally siliceous, argillaceous, with: rare mica.
442 - 448	6	Sandstone, colorless to white, milky white, moderately cemented, very fine-to medium-grained, medium sorted, angular to subangular, siliceous, with: rare chlorite, common mica (muscovite), and rare carbonaceous streaks. Nonporous to slightly porous.
448 - 451	3	Sandstone, as in 442 to 448, with minor stringers of Siltstone, white to light brown, moderately hard, flaky, locally finely sandy, siliceous, locally ferruginous, with: abundant mica (biotite and muscovite).
451 - 466	15	Sandstone, as in 442 to 448.
466 - 471	5	No samples
471 - 489	18	Siltstone, medium to dark gray, brownish-gray, moderately hard, brittle, locally poorly fissile, locally finely sandy, siliceous, with: common mica (biotite and muscovite).
489 - 498	9	Interbedded; Siltstone, as in 471-489, with; Sandstone, white to milky white, well cemented, very fine-to fine-grained, well sorted, angular to subrounded, siliceous, with: rare mica (muscovite). Nonporous.
498 - 511	13	Siltstone, light gray to dark brownish-gray, moderately hard, flaky, locally finely sandy, siliceous, with: abundant mica, and common carbonaceous streaks.
511 - 530	19	Sandstone, conglomeratic, clear to white and milky white, moderately cemented, medium-to very coarse-grained, with common granules, poorly sorted, angular to subrounded, interstitially silty, siliceous and calcareous, with: common mica. Nonporous.

530 - 537	7	Sandstone, clear to white and milky white, well cemented, very fine-to medium-grained, medium sorted, subangular to subrounded, siliceous and calcareous, with: abundant mica (biotite and muscovite), and common chlorite. Nonporous to slightly porous.
537 - 541	4	Siltstone, dark gray to black, moderately hard, tough, locally fissile, locally finely sandy, siliceous and argillaceous, with: rare mica.
541 - 556	15	Shale, silty, dark brownish-gray to black, moderately soft, flaky, fair fissility, locally siliceous, argillaceous, with: rare mica.
556 - 560	4	Siltstone, light to dark gray, dark brownish-gray, moderately hard, flaky, locally finely sandy, siliceous, with: common mica, and common carbonaceous streaks.
560 - 572	12	No samples
572 - 580	8	Sandstone, clear to white, light gray, well cemented, very fine-to medium-grained, medium sorted, subangular to subrounded, interstitially silty, siliceous, with: common mica (biotite and muscovite). Nonporous to slightly porous.
580 - 598	18	Siltstone, light gray, light brownish-gray to dark brown, moderately hard, tough, locally finely sandy, siliceous, with: abundant mica (predominately muscovite), and common carbonaceous streaks.
598 - 602	4	Siltstone, as in 580-598, with: common silty coal (Possible 1 foot coal bed in this interval).
602 - 608	6	No samples
608 - 613	5	Interbedded; Siltstone, as in 580 to 598, with; Sandstone, milky white, moderately cemented, very fine-to coarse-grained, poorly sorted, subangular to rounded, interstitially silty, siliceous, with: common mica, and common carbonaceous streaks. Nonporous.

613 - 634	21	No samples
634 - 652	18	Sandstone, conglomeratic, well cemented, white, milky white, and smoky gray, fine-to very coarse-grained, with common granules, poorly sorted, locally slightly calcareous, angular to subangular, siliceous, with: abundant mica (predominately biotite), ^{and} rare chlorite. Slightly porous.
652 - 674	22	Sandstone, as in 634-652, with common iron-staining.
674 - 677	3	Siltstone, light to dark gray, light brownish-gray, moderately hard, flaky, locally finely sandy, siliceous, with: common mica, and common carbonaceous streaks.
677 - 681	4	No samples
681 - 714	33	Shale, medium to dark gray, moderately hard, flaky, fair to good fissility, locally silty and siliceous, argillaceous, with: rare mica.
714 - 749	35	Sandstone, silty, white, clear, milky white, brown, moderately cemented, very fine to fine-grained, well sorted, subangular to subrounded, interstitially silty, siliceous, with: abundant mica (muscovite and biotite), rare chlorite, and common hematite staining. Nonporous to slightly porous.
749 - 760	11	Sandstone, as in 714-to 749, with abundant iron staining, and common carbonaceous streaks.
760 - 782	22	Sandstone, as in 714 to 749, with stringers of Siltstone, light to dark gray, moderately hard, tough, locally finely sandy, siliceous, with: abundant mica (predominately muscovite), and common carbonaceous streaks.
782 - 791	9	Siltstone, as in 760 to 782.
791 - 810	19	Siltstone, argillaceous, light brownish-gray to dark gray and black, hard, tough, locally poorly fissile, siliceous, with: rare mica and common carbonaceous streaks.

810 - 819	9	Shale, silty, medium to dark gray, moderately hard, flaky, fair fissility, argillaceous and siliceous, with: rare mica.
819 - 827	8	Shale, carbonaceous, dark gray to black, moderately soft, flaky, good fissility, with: abundant coal lamanae and partings, rare mica, and rare plant fossils in the coal.
827 - 862	35	Shale, medium gray to black, hard, tough, fair to good fissility, argillaceous, with: rare mica, and rare coal lamanae.
<u>Lee formation (862-1865)</u>		
862 - 865	3	Siltstone, light to dark gray and black, moderately hard, tough, locally finely sandy, siliceous and argillaceous, with: rare mica, and stringers of Sandstone, white to light gray, moderately cemented, very fine-to fine-grained, well sorted, angular to subangular, siliceous, with: common mica (biotite and muscovite). Nonporous to slightly porous.
865 - 873	8	Sandstone, clear to white and milky white, well cemented, very fine-to medium-grained, medium sorted, angular to subrounded, siliceous, with: common mica (predominately muscovite), rare chlorite, common feldspar, and minor stringers of Siltstone, as in 862 to 865. Nonporous to slightly porous.
873 - 877	4	Siltstone, light to dark brown, with dark gray, moderately soft, brittle, locally finely sandy, argillaceous and ferruginous, with: rare mica, rare pyrite.
877 - 885	8	Sandstone, clear to white, fine-grained, well sorted, subangular to rounded, siliceous, with: rare mica, and rare feldspar. Slightly porous.
885 - 894	9	Sandstone, as in 877 to 885, with common iron staining.
894 - 904	10	Sandstone, white to milky white, poorly cemented, fine-to medium-grained, medium sorted, subangular to subrounded, siliceous, with: rare mica. Slightly porous.

904 - 929	25	*	Sandstone, clear to white, moderately cemented, fine-to coarse-grained, poorly sorted, sub-angular to subrounded, siliceous, very slightly calcareous, with: rare mica. Nonporous.
929 - 938	9		Siltstone, light to medium gray, hard, tough, locally shaly, siliceous and argillaceous, with: rare mica.
938 - 950	12		Interbedded; Siltstone, as in 921 to 938, with; Sandstone, white to light gray, poorly cemented, very fine-to fine-grained, well sorted, sub-angular to subrounded, siliceous, with: common mica (muscovite and biotite), and rare carbonaceous streaks. Nonporous.
950 - 951	1		Coal, in part silty and impure (Interpreted depth and thickness).
951 - 954	3		Interbedded Siltstone and Sandstone, as in 938 to 950.
954 - 974	20		Siltstone, light to medium gray with brownish-gray, moderately hard, brittle, locally finely sandy and siliceous, argillaceous, with: rare mica.
974 - 977	3		Coal, fair conchoidal fracture (Interpreted depth and thickness).
977 - 994	17		Siltstone, as in 954 to 974.
994 - 1008	14		Sandstone, clear to white and milky white, moderately cemented, fine-to coarse-grained, poorly sorted, subangular to subrounded, interstitially silty, siliceous, very slightly calcareous, with: abundant mica (muscovite and biotite), ^{a,b} common chlorite. Nonporous.
1008 - 1015	7		Sandstone, conglomeratic, white, milky white, moderately cemented, medium-to very coarse-grained, with common granules, poorly sorted, angular to subrounded, siliceous, with: abundant mica (muscovite and chlorite), and common chlorite. Nonporous.

1015 - 1044	29	Siltstone, light to dark gray, moderately hard, flaky, locally shaly, locally very finely sandy, siliceous and argillaceous, with: rare mica.
1044 - 1071	27	Interbedded; Sandstone, white to light gray, well cemented, very fine-grained, well sorted, subangular to subrounded, interstitially silty, siliceous, with: rare mica (biotite). Nonporous. With; Siltstone, medium to dark gray, moderately hard, tough, locally finely sandy, siliceous, with: common carbonaceous streaks.
1071 - 1073	2	Coal, glossy black, poor conchoidal fracture, soft (Interpreted depth and thickness).
1073 - 1075	2	Interbedded; Siltstone, as in 1044 to 1071, with; Sandstone, white to milky white, poorly cemented, fine-to coarse-grained, poorly sorted, subangular to subrounded, siliceous. Nonporous to slightly porous.
1075 - 1105	30	Sandstone, as in 1073 to 1075, with minor stringers of Siltstone, as in 1044 to 1071.
1105 - 1116	11	Siltstone, medium to dark gray, black, reddish-brown, moderately soft, flaky, locally poorly fissile, argillaceous, with: rare mica, and common coal laminae.
1116 - 1144	28	Siltstone, as in 1105 to 1116, with stringers of Sandstone, white to light brownish-gray, poorly cemented, very fine-to fine-grained, well sorted, angular to rounded, interstitially silty, siliceous, with common mica (biotite). Nonporous.
1144 - 1150	6	Sandstone, clear to white and milky white, poorly cemented, medium-to coarse-grained, medium sorted, subangular to subrounded, siliceous, with: common mica (biotite and muscovite), and common silty-micaceous partings. Nonporous to slightly porous.

1150 - 1165	15	Siltstone, light to dark gray and brownish-gray, hard, tough, locally finely sandy and siliceous, argillaceous, with: abundant mica.
1165 - 1193	28	Siltstone, as in 1150 to 1165, with stringers of Sandstone, clear to white and light gray, moderately cemented, very fine-to medium-grained, medium sorted, subangular to sub-round, interstitially silty, siliceous, with: common mica, and common carbonaceous streaks. Nonporous.
1193 - 1209	16	Siltstone, medium gray with brownish-gray, moderately hard, brittle, locally finely sandy and siliceous, argillaceous, with: rare mica.
1209 - 1223	14	Sandstone, white to light gray, moderately cemented, fine-to medium-grained, well sorted, angular to subrounded, siliceous, with: rare chlorite, and common mica (biotite and muscovite). Slightly porous to porous.
1223 - 1232	9	Siltstone, light to dark gray, moderately hard, tough, locally poorly fissile, argillaceous, with: abundant mica (muscovite).
1232 - 1242	10	Sandstone, conglomeratic, white to light gray, milky white, light brown, moderately cemented, medium-to very coarse-grained, with common granules and rare pebbles, poorly sorted, subangular to subrounded, siliceous, with: rare mica, and rare coal fragments (possible 1 foot coal bed in the interval 1235 to 1242.). Nonporous to slightly porous.
1242 - 1250	8	Sandstone, conglomeratic, as in 1232 to 1244, without pebbles.
1250 - 1255	5	Sandstone, white to light gray, poorly cemented, very fine-to fine-grained, well sorted, subangular to subrounded, interstitially silty, siliceous, with: abundant round, reddish-brown siderite nodules, abundant mica (biotite and muscovite).
1255 - 1259	4	Sandstone, as in 1250 to 1255, with common very coarse-grained quartz.

1259 - 1267	8	Siltstone, light to dark gray, black, hard, tough, locally finely sandy and siliceous, argillaceous, with: rare mica.
1267 - 1274	7	Siltstone, as in 1259 to 1267, with common coal fragments (possible 6 inch Coal bed in this interval.)
1274 - 1294	20	Sandstone, clear to white, moderately cemented, fine-to coarse-grained, medium sorted, sub-angular to rounded, siliceous, with: common mica (biotite and muscovite), and rare chlorite, Nonporous to slightly porous.
1294 - 1298	4	Interbedded; Sandstone, as 1274 to 1294, with; Limestone, dolomitic, silty, moderately soft, fine-grained, microcrystalline, with: rare mica, and rare calcite. (X-ray diffraction check)
1298 - 1307	9	Shale, light to dark gray, moderately soft, flaky, good fissility, locally slightly silty and siliceous, with: common carbonaceous streaks, and rare coal lamanae.
1307 - 1311	4	Siltstone, light gray to light brownish-gray, moderately soft, flaky, locally finely sandy, siliceous, with: common mica (predominately biotite), and rare carbonaceous streaks.
1311 - 1318	7	Sandstone, white, light gray, poorly cemented, medium to coarse-grained, well sorted, sub-angular to rounded, interstitially silty, siliceous, slightly calcareous, with: abundant mica (biotite and muscovite), and rare chlorite. Nonporous.
1318 - 1326	8	Sandstone, as in 1311 to 1318, with minor stringers of Siltstone, as in 1307 to 1311.
1326 - 1338	12	Sandstone, as in 1311 to 1318.
1338 - 1350	12	Shale, carbonaceous, soft, crumbly, good fissility, argillaceous, with: rare mica.
1350 - 1355	5	Shale, silty, moderately soft, flaky, fair to good fissility, argillaceous, with: rare mica and minor stringers of Sandstone, white to light brownish-gray, poorly cemented, very fine-to fine-grained, well sorted, subrounded, siliceous, with: rare mica and common carbonaceous streaks. Slightly porous.

1355 - 1376	21	Siltstone, light to dark gray, light brownish-gray, hard, tough, locally poorly fissile, locally finely sandy, siliceous and argillaceous. with: rare mica.
1376 - 1380	4	Coal, in part silty and impure, fair coicoidal fracture, with: common plant fossile.
1380 - 1382	2	Shale, carbonaceous, black, soft, flaky, fair fissility, argillaceous, with: common coal lamanae
1382 - 1405	23	Siltstone, light to dark gray, moderately hard, tough, locally poorly fissile, argillaceous, with: rare mica.
1405 - 1413	8	Siltstone, light to medium brown dark gray, moderately soft, flaky, locally finely sandy, argillaceous.
1413 - 1426	13	Siltstone, light to dark gray, moderately hard, brittle, siliceous and argillaceous, with: rare mica, and rare carbonaceous streaks.
1426 - 1435	9	Shale, silty, medium to dark gray, moderately soft, flaky, fair fissility, argillaceous, with: rare mica.
1435 - 1459	24	Shale, as in 1426 to 1435, with minor stringers of Siltstone, as in 1413 to 1426.
1459 - 1462	3	Coal, in part silty and impure, with common mica, and common plant fossils.
1462 - 1495	33	Sandstone, light gray, light brownish-gray, moderately sorted, fine-to medium-grained, well sorted, subangular to subrounded, interstitially silty, siliceous, calcareous, with: abundant mica, and common silty - micaceous partings. Nonporous.
1495 - 1507	12	Siltstone, medium to dark gray, moderately hard, flaky, good fissility, argillaceous, with: rare mica.

1507 - 1519	12	Shale, medium to dark gray, moderately hard, flaky, good fissility, argillaceous, with: rare coal lamanae, and abundant carbonaceous streaks.
1519 - 1530	11	Interbedded; Shale, as in 1507 to 1519, with; Siltstone, light to medium greenish-gray, with red, very hard, tough, locally finely sandy and siliceous, argillaceous; with: abundant mica (biotite and muscovite).
1530 - 1539	9	No samples
1539 - 1544	5	Sandstone, clear to white, milky white, pale green, poorly cemented, medium-to coarse grained, medium sorted, subangular to rounded, calcareous, with: common mica (muscovite and biotite), rare chlorite, and rare silty partings. Nonporous to slightly porous.
1544 - 1548	4	Sandstone, as in 1539 to 1544, slightly calcareous.
1548 - 1549	1	No samples
1549 - 1555	6	Siltstone, light brown, light to medium gray, moderately soft, crumbly, locally finely sandy, siliceous, with: rare mica, common carbonaceous streaks, and stringers of Sandstone, white to milky white, moderately cemented, medium-to coarse-grained, well sorted, angular to sub-rounded, siliceous, very slightly calcareous. Nonporous.
1555 - 1561	6	Sandstone, as in 1549 - 1555.
1561 - 1569	8	Sandstone, white to light gray, well cemented, medium-grained, well sorted, subangular to subround, interstitially silty, siliceous, slightly calcareous, with: rare chlorite, and rare mica. Nonporous.
1569 - 1584	15	Sandstone, as in 1561 to 1569, with minor stringers of Siltstone, medium to dark gray, hard, tough, locally poorly fissile, argillaceous, with: common mica.

1584 - 1588	4	Sandstone, white to light gray and greenish-gray, moderately cemented, medium-to coarse-grained, medium sorted, subangular to subrounded, siliceous, slightly calcareous, with: common mica (muscovite and biotite), and rare carbonaceous streaks. Nonporous to slightly porous.
1588 - 1608	20	Sandstone, conglomeratic, clear to white, moderately cemented, medium-to very coarse-grained, with common granules and rare pebbles, poorly sorted, angular to subrounded, interstitially silty, siliceous, slightly calcareous, with: common mica, and rare chlorite. Slightly porous.
1608 - 1609	1	No samples
1609 - 1613	4	Sandstone, white, moderately cemented, medium-to coarse-grained, with rare very coarse grained, sorted, angular to subangular, siliceous, very slightly calcareous, with: rare mica. Nonporous to slightly porous.
1613 - 1621	8	Sandstone, as in 1609 to 1613, with common iron staining (probably bit particles)
1621 - 1635	14	Sandstone, as in 1609 to 1613.
1635 - 1643	8	Sandstone, white, moderately cemented, fine-to coarse-grained, medium sorted, angular to subrounded, siliceous, slightly calcareous, with: rare iron-staining (bit particles ?). Nonporous to slightly porous.
1643 - 1660	17	Sandstone, clear to white, milky white, poorly to moderately cemented, fine-to coarse-grained, medium sorted, subangular to subrounded, siliceous, slightly calcareous, with: rare mica, and stringers of Siltstone, light to dark gray, moderately soft, flaky, argillaceous and siliceous, with: rare mica. Slightly porous to porous.
1660 - 1670	10	Sandstone, as in 1643 to 1660.
1670 - 1684	14	Sandstone, conglomeratic, clear to white and milky white, friable, medium-to very coarse-grained, with common granules, poorly sorted, subangular to subrounded, siliceous, very slightly calcareous, with: rare mica. Slightly porous.

1684 - 1690	6	Sandstone, as in 1670 to 1684, non-conglomeratic.
1690 - 1695	5	Sandstone, conglomeratic, white to milky white, moderately cemented, medium-to very coarse-grained, with common granules, poorly sorted, angular to subrounded, interstitially slightly silty, siliceous, with: rare mica, and rare chlorite. Nonporous to slightly porous.
1695 - 1721	26	Sandstone, clear to white, poorly cemented, fine-to coarse-grained, medium sorted, sub-angular to rounded, siliceous, with: rare mica. Nonporous.
1721 - 1725	4	Sandstone, as in 1695 to 1721, with rare very coarse-grained.
1725 - 1739	1 4	Sandstone, as in 1695 to 1721.
1739 - 1743	4	Sandstone, conglomeratic, white to milky white with light gray, moderately cemented, medium-to very coarse-grained, with common granules, poorly sorted, angular to subangular, siliceous, very slightly calcareous, with: rare mica, and common silty-coal fragments (possible 6 inch coal bed in this interval). Nonporous to slightly porous.
1743 - 1752	9	Sandstone, as in 1739 to 1743, non-conglomeratic.
1752 - 1755	3	No samples
1755 - 1760	5	Sandstone, as in 1739 to 1743.
1760 - 1764	4	Sandstone, as in 1743-1752, with abundant iron-staining (probably bit particles).
1764 - 1774	10	Sandstone, conglomeratic, white to milky white, yellow, moderately cemented, medium-to very coarse-grained, with abundant granules, and rare pebbles, poorly sorted, angular to sub-angular, siliceous, slightly calcareous, with: rare mica. Nonporous.
1774 - 1776	2	No samples
1776 - 1780	4	Sandstone, conglomeratic, as in 1764 to 1774.
1780 - 1785	5	No samples

1785 - 1790	5	Sandstone, conglomeratic, as in 1764 to 1774, with common silty-micaceous partings.
1790 - 1810	20	Sandstone, white, light gray, light brown, poorly cemented, fine-to coarse-grained, medium sorted, angular to subangular, siliceous, slightly calcareous, with: common mica, rare chlorite. Nonporous to slightly porous.
1810 - 1841	31	Sandstone, as in 1790 to 1810, with, minor stringers of Siltstone, light to dark gray, rare reddish-brown, moderately soft, flaky, argillaceous, with: rare mica, rare pyrite.
1841 - 1846	5	No samples.
1846 - 1865	19	Sandstone, with Siltstone stringers as in 1846 to 1851, with rare coal fragments.
<u>Mississippian System (1865-3955)</u>		
<u>Pennington Group (1865-2980)</u>		
<u>Bluestone formation (1865-2295)</u>		
1865 - 1891	26	Siltstone, medium to dark gray, rare red, moderately hard, tough, locally very finely sandy, argillaceous, locally calcareous with: common mica, and stringers of Sandstone, as in 1790 to 1810.
1891 - 1900	9	Siltstone, light green, light to medium gray, brownish-gray, moderately soft, flaky, argillaceous, with: rare mica.
1900 - 1904	4	Siltstone, variegated, light green, red-brown, light to medium gray, moderately soft, flaky, argillaceous and calcareous, with: abundant red-brown and green fine-grained calcite, and rare mica.
1904 - 1909	5	No samples
1909 - 1915	6	Siltstone, green, light to medium gray, with rare reddish-brown, hard, tough, locally finely sandy and siliceous, calcareous, with: common reddish-brown very fine-grained calcite, and abundant round, brown chert nodules.
1915 - 1921	6	Siltstone, light gray, light green, black, very soft, crumbly, locally poorly fissile, argillaceous, calcareous, with: rare chert nodules, rare mica (biotite).

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1921 - 1933	12	Siltstone, variegated, red, green, tan, light to medium gray, brown, moderately hard, tough, locally poorly fissile, argillaceous, calcareous, and ferruginous, with: rare mica.
1933 - 1938	5	Sandstone, white, green, well cemented, very fine-to fine-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with: common mica, common carbonaceous streaks, Nonporous.
1938 - 1970	32	Siltstone, variegated, as in 1921 to 1933.
1970 - 1977	7	Siltstone, as in 1921 to 1933, with minor stringers of Limestone, light brown, very fine-grained, cryptocrystalline.
1977 - 1990	13	Siltstone, light to medium green, with rare red, hard, tough, locally finely sandy and siliceous, calcareous, with: abundant mica (biotite).
1990 - 2017	27	Sandstone, clear to white and light greenish-gray, moderately cemented, very fine-to medium-grained, medium sorted, angular to subangular, interstitially silty, calcareous, with: common mica, and stringers of Siltstone, as in 1977 to 1990. Nonporous.
2017 - 2025	8	Sandstone, white, milky white, light greenish-gray, moderately cemented, fine-to medium-grained, well sorted, angular to subangular, siliceous, slightly calcareous, with: abundant mica (biotite and muscovite), and rare chlorite. Slightly porous.
2025 - 2049	24	Sandstone, as in 2017 to 2025, with minor stringers of Siltstone, light to dark gray, green, moderately hard, brittle, argillaceous.
2049 - 2056	7	Sandstone, conglomeratic, clear to white and milky white, poorly cemented, medium-to very coarse-grained, with common granules, poorly sorted, angular to subangular, siliceous, with: common mica, and common silty-micaceous partings. Nonporous to slightly porous.

2056 - 2061	5	Siltstone, light to dark gray and black, hard, tough, locally finely sandy and siliceous, argillaceous, with: rare mica.
2061 - 2071	10	Siltstone, light to dark gray, light brown, moderately hard, brittle, locally finely sandy, argillaceous, with: rare mica.
2071 - 2080	9	No samples
2080 - 2100	20	Interbedded; Siltstone, as in 2061 to 2071, with; Sandstone, light gray, well cemented, very fine-grained, well sorted, subangular, interstitially silty, siliceous, with: rare mica, and rare chlorite. Nonporous.
2100 - 2110	10	Sandstone, as in 2080 to 2100, calcareous.
2110 - 2123	13	Sandstone, as in 2100 to 2110, with stringers of Siltstone, light to dark brownish-gray, moderately soft, flaky, locally finely sandy, siliceous, with: common mica (muscovite).
2123 - 2150	27	Siltstone, as in 2110 to 2123, with minor stringers of Sandstone, as in 2100 to 2110.
2150 - 2170	20	Siltstone, medium to dark gray and black, moderately hard, flaky, locally finely sandy and siliceous, argillaceous, with: rare mica.
2170 - 2253	83	Shale, dark gray to black, moderately hard, flaky, fair to good fissility, locally silty and siliceous, argillaceous, with: rare muscovite.
2253 - 2270	17	Shale, as in 2170 to 2253, with: rare pyrite.
2270 - 2294	24	Shale, carbonaceous, black, moderately hard, tough, good fissility, locally silty, calcareous and argillaceous, with: common pyrite, rare mica, and rare fossils (cephalopod).
<u>Princeton sandstone (2294-2522)</u>		
2294 - 2299	5	Interbedded; Siltstone, light to medium gray, moderately hard, tough, locally poorly fissile, argillaceous, with: rare mica, and; Sandstone, white to light gray, well cemented, very fine- to fine-grained, well sorted, subangular to subrounded, interstitially silty, siliceous, very slightly calcareous, with: rare mica (muscovite and biotite). Nonporous.

2299 - 2310	11	No samples
2310 - 2325	15	Sandstone, as in 2294 to 2299, with stringers of Siltstone, as in 2294 to 2299.
2325 - 2334	9	Siltstone, light to dark gray and black, hard, tough, fair fissility, locally very finely sandy and siliceous, argillaceous, with: rare mica, and stringers of Sandstone, as in 2294 to 2299.
2334 - 2348	14	Sandstone, clear to white and light gray, moderately cemented, very fine-to medium-grained, medium sorted, subangular to subrounded, siliceous, slightly calcareous, with rare biotite, and stringers of Siltstone, as in 2325 to 2334.
2348 - 2351	3	Siltstone, as in 2325 to 2334.
2351 - 2376	25	Sandstone, with Siltstone stringers, as in 2334 to 2348.
2376 - 2385	9	Sandstone, clear to white, friable, fine-to medium-grained, well sorted, angular to subrounded, siliceous, calcareous, with: common mica, and common silty-micaceous partings. Slightly porous.
2385 - 2401	16	Sandstone, as in 2376 to 2385 with stringers of Siltstone, light to dark gray, moderately hard, brittle, locally finely sandy, siliceous and argillaceous, with: rare mica.
2401 - 2404	3	Sandstone, as in 2376 to 2385, with rare very coarse-grained.
2404 - 2411	7	Siltstone, light to medium gray, moderately soft, flaky, locally poorly fissile, locally finely sandy and siliceous, argillaceous, with: common muscovite.
2411 - 2422	11	Siltstone, reddish-brown, light gray, moderately hard, brittle, locally finely sandy, argillaceous and ferruginous with: rare mica.

2422 - 2435	13	Sandstone, conglomeratic, clear to white, milky white, rare rose, moderately cemented, medium-to very coarse-grained, with common granules, poorly sorted, angular to subangular, siliceous, very slightly calcareous, with: rare mica. Slightly porous.
2435 - 2449	14	Sandstone, white to milky white and yellow, moderately cemented, fine-to very coarse-grained, poorly sorted, angular to subrounded, interstitially silty, siliceous, with: common silty-micaceous partings. Nonporous to slightly porous.
2449 - 2469	20	Siltstone, ferruginous, calcareous (30% calcite), red, green, rare cream, soft, crumbly, locally fissile, argillaceous, with: rare mica, rare carbonaceous streaks, rare pyrite, and minor stringers of Limestone, argillaceous, light brownish-gray, moderately soft, fine-grained, cryptocrystalline, rare fossil fragments, with: rare pyrite. (X-ray diffraction check on Siltstone and Limestone)
2469 - 2488	19	Siltstone with Limestone stringers, as in 2449 to 2469, with less red siltstone, and some light tan oolitic Limestone.
2488 - 2522	34	Siltstone, light to dark gray, black green, maroon drab, moderately soft, flaky, fair fissility, argillaceous and calcareous, with: rare mica, rare pyrite, and rare carbonaceous streaks.
<u>Hinton formation (2522-2980)</u>		
2522 - 2570	48	Interbedded; Dolomite, light to dark olive gray, moderately hard, flaky, fine-grained, cryptocrystalline, with: common pyrite, with; Siltstone, as in 2488 to 2522.
2570 - 2608	38	Siltstone, light to dark gray, very hard, tough, locally finely sandy and siliceous, argillaceous, slightly calcareous, with: rare mica, and common pyrite.
2608 - 2626	18	Interbedded; Siltstone, as in 2570 to 2608, with; Sandstone, white to light gray, well cemented, very fine-to fine-grained, well sorted, subangular to subrounded, interstitially silty, calcareous, with: common mica (predominately biotite). Nonporous.

2626 - 2636	10	Siltstone, light to medium gray, light greenish-gray, moderately soft, flaky, locally finely sandy, locally poorly fissile, siliceous and argillaceous, with: rare pyrite, common carbonaceous streaks, and abundant mica.
2636 - 2644	8	Siltstone, as in 2626 to 2636, with: stringers of Dolomite, calcareous, tan, light brownish-gray, moderately hard, fine-grained, cryptocrystalline.
2644 - 2675	31	Siltstone, medium to dark green and gray, red, maroon drab, moderately soft, flaky, fair fissility, argillaceous, with: rare mica, and minor stringers of Dolomite, as in 2636 to 2644.
2675 - 2695	20	Siltstone, light to medium gray, moderately hard, brittle, very finely sandy, siliceous, with: common mica, and abundant carbonaceous streaks.
2695 - 2697	2	Siltstone, light brown, light to medium gray, with rare black, moderately soft, crumbly, locally very finely sandy, siliceous and argillaceous, with: common mica.
2697 - 2727	30	Siltstone, red, light green, with light to medium gray, moderately soft, flaky, locally poorly fissile, argillaceous and ferruginous, with: common mica.
2727 - 2745	18	Interbedded; Shale, medium to dark gray, moderately hard, brittle, good fissility, argillaceous, with: rare mica, with; Siltstone, red, maroon drab, light green, moderately soft, flaky, locally finely sandy, siliceous and ferruginous, with: rare mica, with; Limestone, dark brownish-gray and gray, locally oolitic fossil fragmental, moderately hard, fine-grained, microcrystalline, with: common carbonaceous streaks.
2745 - 2760	15	Shale, medium to dark gray, moderately hard, flaky, fair to good fissility, locally silty and siliceous, argillaceous and calcareous, with: rare pyrite, and rare carbonaceous streaks.

2760 - 2791	31	Siltstone, variegated, red, light green, light to dark gray, brown, cream, moderately soft, flaky, locally finely sandy and siliceous, argillaceous and ferruginous, calcareous, with: common pyrite, and rare carbonaceous streaks.
2791 - 2800	9	Siltstone, as in 2760 to 2791, with less red.
2800 - 2807	7	Siltstone, light green, light to dark gray, black, moderately soft, flaky, locally finely sandy and siliceous, argillaceous, with: rare pyrite.
2807 - 2821	14	Siltstone, light to dark brown, light to dark gray, with rare reds, moderately soft, flaky, locally finely sandy, siliceous, with: rare mica.
2821 - 2827	6	Siltstone, red, light brown, with light to medium gray, moderately hard, tough, locally poorly fissile, ferruginous and argillaceous, with: rare mica, and common light iron, cryptocrystalline dolomite.
2827 - 2850	23	Siltstone, red, light to dark gray, cream, black, moderately hard, brittle, locally poorly fissile, argillaceous and ferruginous, with: rare mica, rare pyrite.
2850 - 2864	14	Siltstone, light green, light to medium gray, moderately hard, brittle, locally finely sandy, siliceous and argillaceous, with: rare mica.
<u>Stony Gap sandstone member (2864-2980)</u>		
<u>2864 - 2897</u>	<u>33</u>	Interbedded; Siltstone, light to dark gray, with rare red, moderately hard, brittle, locally finely sandy, siliceous, with: abundant mica (muscovite and brittle), with; Sandstone, clear to white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subangular to subrounded, calcareous, with: rare mica. Nonporous and siliceous.
2897 - 2900	3	Interbedded; Siltstone and Sandstone, as in 2864 to 2897, with abundant iron staining (probably bit particles).

2900 - 2913	13	Interbedded; Siltstone and Sandstone, as in 2864 to 2897.
2913 - 2918	5	Interbedded; Siltstone and Sandstone, as in 2864 to 2897, with: abundant pyrite.
2918 - 2921	3	Siltstone, light to dark gray and black, moderately soft, flaky, local fair fissility, argillaceous, with: abundant pyrite, and rare mica.
2921 - 2932	11	Shale, silty, medium gray, moderately soft, flaky, fair to good fissility, argillaceous, with: rare mica, and rare pyrite.
2932 - 2939	7	Siltstone, red, light green, moderately hard, brittle, locally finely sandy and siliceous, argillaceous and ferruginous, with: rare mica.
2939 - 2950	11	Siltstone, medium to dark gray, with red and light green, hard, tough, local fair fissility, argillaceous, with: rare pyrite, and common mica.
2950 - 2971	21	Interbedded; Siltstone, as in 2939 to 2950, with: Sandstone, clear to white and milky white, well cemented, very fine-to fine-grained, well sorted, subangular to sub-rounded, interstitially silty, siliceous, with: rare pyrite. Nonporous.
2971 - 2973	2	Sandstone, as in 2950 to 2971.
2973 - 2975	2	No samples
2975 - 2980	5	Sandstone, as in 2950 to 2971.
<u>Bluefield formation (2980-3162)</u> 2980 - 2991	11	Siltstone, grading to impure Limestone, light to dark gray, moderately hard, flaky, locally finely sandy and siliceous, calcareous, with: rare pyrite, common carbonaceous streaks, and rare fossils (crinoid stems).
2991 - 3032	41	Limestone, dolomitic, silty, argillaceous, dark gray to black, rare fossil fragments (crinoids), moderately hard, fine-grained, microcrystalline, with rare pyrite, rare calcite. (X-ray diffraction check)

3032 - 3050	18	Interbedded; Limestone, as in 2991 to 3032, with; Siltstone, light to medium gray, and light brownish-gray, moderately hard, brittle, locally poorly fissile, argillaceous and calcareous, with: rare muscovite, and rare pyrite.
3050 - 3076	26	Siltstone, light to dark gray, light greenish-gray, moderately hard, flaky, locally finely sandy and siliceous, argillaceous, calcareous, with: rare mica.
3076 - 3087	11	Interbedded; Siltstone, as in 3050 to 3076, with; Sandstone, white to light gray, poorly cemented, very fine-to fine-grained, well sorted, angular to subangular, siliceous and calcareous, with: rare mica (muscovite and biotite), and rare pyrite. Nonporous to slightly porous.
3087 - 3098	11	Sandstone, as in 3076 to 3087.
3098 - 3116	18	Siltstone, light to dark gray, hard, tough, locally finely sandy and siliceous, argillaceous, with: common carbonaceous streaks and lamanae, and rare mica.
3116 - 3126	10	Shale, silty, medium to dark gray and black, hard, tough, fair fissility, argillaceous and calcareous, with: rare mica, and rare pyrite.
3126 - 3162	36	Shale, as in 3116 to 3126, non-calcareous.
Greenbriar limestone (3162-3771)		
<u>3162 - 3186</u>	24	Limestone, argillaceous, light tan, medium to dark gray, rare oolites, common fossils (crinoid stems), (contains one stem 3.5 mm. in diameter), moderately hard, fine-grained, microcrystalline, with: rare pyrite, and common calcite.
3186 - 3205	19	Limestone, as in 3162 to 3186, with: rare chert.
3205 - 3223	18	Limestone, silty, medium to dark brown, fossil fragmental, hard, fine-grained, microcrystalline, with: rare calcite, and rare pyrite.
3223 - 3259	36	Limestone, light to dark brown, black, light gray, rare oolites, fossil fragmental, hard, fine-grained, microcrystalline, with: rare pyrite.

3259 - 3270	11	Limestone, as in 3223 to 3259, with: rare calcite.
3270 - 3286	16	Limestone, dark gray, rare fossil fragments, moderately hard, fine-grained, microcrystalline, with: common calcite, and rare pyrite.
3286 - 3320	34	Limestone, medium to dark gray, fossiliferous (crinoid stems, bryozoa, and brachiopod fragments), moderately hard, very fine-grained, cryptocrystalline, with: common pyrite, and common calcite.
3320 - 3333	13	Limestone, light to dark gray, fossil fragmental, moderately soft, flaky, fine-grained, microcrystalline, with: common calcite.
3333 - 3350	17	Limestone, light to dark gray, greenish-gray, rare oolites, fossil fragmental, moderately soft, fine-grained, microcrystalline, with: rare calcite.
3350 - 3395	45	Limestone, as in 3333 to 3350, without greenish-gray.
3395 - 3413	18	Limestone, light tan, light to medium brown, rare oolites, rare fossil fragments, moderately soft, cryptocrystalline, with: common calcite, and rare pyrite.
3413 - 3450	37	Limestone, light brown, light gray, unfossiliferous, moderately hard, microcrystalline, with: common calcite.
3450 - 3470	20	Limestone, medium to dark brown, with medium gray, rare oolites, unfossiliferous, moderately hard, fine-grained, microcrystalline, with: common light brown calcite.
3470 - 3489	19	Limestone, locally slightly argillaceous, light to dark brown, medium to dark gray, rare fossil fragments, hard and tough, fine-grained, microcrystalline, with: rare calcite, and rare pyrite.
3489 - 3497	8	No samples
3497 - 3529	32	Limestone, as in 3470 to 3489, with rare oolites.

3529 - 3545	16	Limestone, light to medium brown, white, unfossiliferous, moderately soft, very fine-grained, cryptocrystalline, with: common calcite.
3545 - 3573	28	Limestone, as in 3529 to 3545, with abundant oolites.
3573 - 3619	46	Limestone, as in 3529 to 3545.
3619 - 3632	13	Limestone, light brown, white, unfossiliferous, hard and brittle, very fine-grained, cryptocrystalline, with: common calcite.
3632 - 3682	50	Limestone, as in 3619 to 3632, with rare pieces of red calcareous Siltstone.
3682 - 3700	18	Limestone, as in 3619 to 3632.
3700 - 3740	40	Limestone, white, light gray, light to medium brown, yellow, rare oolites, unfossiliferous, moderately hard, fine-grained, microcrystalline, with: rare calcite, and rare chert.
3740 - 3750	10	Limestone, as in 3700 to 3740, with common Dolomite, medium gray, soft, microcrystalline.
3750 - 3771	21	Dolomite, calcareous, light to dark grayish-brown, olive-drab, moderately hard, brittle, fine-grained, microcrystalline, with: common chert. (X-ray diffraction check)
<u>Maccrady formation</u> (3771-3879-3890) 3771 - 3787	16	Interbedded; Siltstone, dolomitic, light to dark brown, light gray, red, moderately hard, brittle, locally finely sandy and siliceous, argillaceous, with: rare mica, with; Sandstone, clear to white and milky white, yellow, moderately cemented, medium-to coarse-grained, well sorted, angular to subrounded, interstitially silty, calcareous, with: rare mica. Slightly porous.
3787 - 3815	28	Siltstone, red, reddish-brown, light to medium green, tan, white, moderately hard, brittle, locally finely sandy and siliceous, argillaceous and ferruginous, slightly calcareous, with: rare muscovite.
3815 - 3828	13	Siltstone, as in 3787 to 3815, with abundant dark gray to black, and without tan and white.

3828 - 3850	22	Siltstone, red, with rare gray, hard, tough, locally finely sandy and siliceous, ferruginous, with: common mica, and rare pyrite.
3850 - 3856	6	Siltstone, as in 3828 to 3850, slightly calcareous, contains small amount of anhydrite.
3856 - 3860	4	Siltstone, as in 3828 to 3850.
3860 - 3879	19	Siltstone, red, green, moderately soft, flaky, locally finely sandy and siliceous, argillaceous and ferruginous, with: common muscovite.
<p>Price formation $\sqrt{(3879-3890)-3955}$ 3879 - 3890 $\sqrt{\quad}$ 11 $\sqrt{\quad}$ No samples</p>		
3890 - 3910	20	Siltstone, sandy (grading almost to very fine-grained Sandstone), light gray, with dark gray, soft, flaky, siliceous, locally argillaceous, with: common mica.
3910 - 3927	17	Siltstone as in 3890 to 3910, with stringers of Siltstone, dark gray to black, moderately hard, brittle, locally poorly fissile, locally very finely sandy, argillaceous, with: rare mica, and rare carbonaceous streaks.
3927 - 3928	1	No samples
3928 - 3955	27	Siltstone, as in 3910 to 3927.
<p>Mississippian - Devonian Systems(3955-4365) <u>Big Stone Gap shale (3955-4365)</u></p>		
3955 - 4026	71	Shale, silty, light to dark gray, hard, tough, poorly fissile, argillaceous, very slightly calcareous, with: rare mica, and rare pyrite.
4026 - 4069	43	Shale, medium to dark gray, very hard, tough, poor to fair fissility, locally silty and siliceous, argillaceous, with: rare mica, and rare pyrite.
4069 - 4100	31	Shale, dark gray, hard, tough, fair to good fissility, argillaceous, with: rare pyrite.
4100 - 4112	12	Shale, silty, light to dark gray, hard, tough, poor to fair fissility, locally siliceous, argillaceous, with: rare pyrite.
4112 - 4145	33	Shale, medium to dark gray, moderately hard, tough, fair to good fissility, argillaceous, with: rare mica.

4145 - 4183	38	Shale, light to medium brown, light to dark gray, with reddish-brown, hard, tough, fair fissility, argillaceous, with: rare mica.
4183 - 4300	117	Shale, medium to dark gray, with reddish-brown, hard, tough, fair fissility, locally slightly silty and siliceous, argillaceous, with: rare mica, and rare pyrite.
4300 - 4310	10	No samples
4310 - 4365	55	Shale, carbonaceous, dark gray to black, moderately hard, tough, good fissility, argillaceous, with: rare pyrite, and rare coal partings.
<u>Devonian System (4365-T. D.)</u>		
<u>Devonian shales (4365-T. D.)</u>		
4365- 4403	38	Interbedded; Shale, light to dark gray, moderately soft, flaky, fair to good fissility, argillaceous, with: rare pyrite, with; Siltstone, white to light gray, moderately soft, flaky, locally very finely sandy (grading to very fine-grained sandstone), siliceous, with: rare pyrite, and common mica (predominately muscovite)
4403 - 4446	43	Siltstone, as in 4365 to 4403, with minor stringers of light to medium gray Shale.
4446 - 4493	47	Siltstone, carbonaceous, black, hard, tough, locally poorly fissile, argillaceous, with: common mica, with: minor stringers of Siltstone, light brown, moderately hard, tough.
4493 - 4523	30	Interbedded; Siltstone, as in 4446 to 4493, with; Shale, light gray, hard, tough, fair fissility, argillaceous, with: rare mica.
4523 - 4563	40	Siltstone, light gray, with rare dark gray, moderately hard, brittle, locally finely sandy and siliceous, argillaceous, with: common mica, 5% dolomite (X-ray diffraction)
4563 - 4663	100	Interbedded; Siltstone, as in 4523 to 4563, with common light brown, with; Shale, light to medium gray, moderately hard, brittle, good fissility, locally slightly silty, argillaceous, with: rare mica, and rare carbonaceous streaks.

4663 - 4900	227	Interbedded; Siltstone, medium to dark gray with black, moderately hard, brittle, locally finely sandy and siliceous, argillaceous, with: common mica, with; Shale as in 4563 to 4663.
4900 - 4928	28	Interbedded; Siltstone and Shale, as in 4663 to 4900, with: common pyrite.
4928 - 5005	77	Interbedded; Siltstone and Shale, as in 4663 to 4900, with rare brown Siltstone.
5005 - 5073	68	Shale, light gray, with medium gray, hard, tough, fair to good fissility, locally slightly silty, argillaceous, with: rare mica, and stringers of Siltstone, dark gray to black, moderately hard, tough, locally poorly fissile, argillaceous.
5073 - 5153	80	Shale, carbonaceous, dark gray to black, hard, tough, fair fissility, locally silty and siliceous, argillaceous, with rare mica.
5153 - 5206	53	Shale, as in 5073 to 5153, with stringers of Siltstone, light to medium gray, hard, tough, argillaceous, with: rare mica, and rare pyrite.
5206 - 5373	167	Shale, light to dark gray, moderately hard, brittle, fair to good fissility, locally silty, argillaceous, with: abundant pyrite.
5373 - 5459	86	Interbedded; Shale, as in 5206 to 5373, with; Siltstone, light gray, moderately hard, brittle, locally finely sandy, siliceous, with: rare mica.
5459 - 5518	59	Interbedded; Shale and Siltstone, as in 5373 to 5459, with common light brown, slightly calcareous Siltstone.
5518 - 5546	28	Interbedded; Shale and Siltstone, as in 5459 to 5518, with: common pyrite.
5546 - 5624	78	Shale, very carbonaceous, grading to impure coal, black, moderately soft, flaky, fair fissility, argillaceous, with abundant coal lamanae and partings, rare milky white, granite-size, white quartz fragments, and rare pyrite.

5624 - 5628

4

Limestone, light gray, rare fossil fragments, hard, fine-grained, microcrystalline, with: rare pyrite, and common calcite.

Total Depth -- 5628

Operator: Clinchfield Coal Company
 Farm: J. W. Wright
 Well No.: 212
 Location: Dickenson County
 6550' S. of 37°10'
 5600' W. of 82°20'
 Elevation: 1600.0' Ground
 Total Depth: 5628' (5616' SLM)
 Drilling Commenced: 6/5/58
 Well Completed: 2/15/59
 Result: Gas Well
 Coal: 282'-284', 590'-593', 712'-714', 980'-981', 1267'-1268',
 1385'-1388'
 Water: 55', 234'
 Gas Show: 987', 1270', 1388', 3690'-3750', 4424'-4430'

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

Pennsylvanian System (0-1865')
 Pottsville Group (0-1865')
 Norton formation (0-862')
 Lee formation (862'-1865')

Mississippian System (1865'-3955')
 Pennington Group (1865'-2980')
 Bluestone formation (1865'-2294')
 Princeton sandstone (2294'-2522')
 Hinton formation (2522'-2980')
 Stony Gap sandstone member (2864'-2980')

 Bluefield formation (2980'-3162')
 Greenbriar limestone (3162'-3771')
 Maccrady formation [3771'-(3879'-3890')]
 Price formation [(3879'-3890')-3955']

Mississippian-Devonian Systems (3955'-4365')
 Big Stone Gap shale (3955'-4365')

Devonian System (4365'-T. D.)
 Devonian shales and siltstones (4365'-T. D.)

GEOLOGIC SUMMARY

Pennsylvanian System

Norton Formation	in	75
	bottom	862
Lee Formation	top	862
	bottom	1865

Mississippian System

Bluestone Formation	top	1865
	bottom	2294
Princeton Sandstone	top	2294
	bottom	2449
Hinton Formation	top	2449
	bottom	2980
Stony Gap Sandstone	top	2760
	bottom	2980
Bluefield Formation	top	2980
	bottom	3162
Greenbrier Limestone	top	3162
	bottom	3771
Maccrady — Price Formations	top	3771
	bottom	3955

Mississippian — Devonian Systems

Big Stone Gap Shale	top	3955
	bottom	4365

Devonian — Pre-Devonian Systems

Devonian — Pre-Devonian undivided	top	4365
	(sampled depth 5628)	

Correlations: J. M. Wilson and Keith Robinson

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