

Operator: Clinchfield Coal Company  
Farm: David Colley  
Well No.: 107  
Location: Dickenson County  
8200' S. of 37°05'  
1100' W. of 82°20'  
Elevation: 1517.4'  
Total Depth: 5804' (cuttings to 3106')  
Drilling Commenced: 11/28/49  
Well Completed: 6/27/50  
Result: Gas Well

VDMR Well No. 143  
Geologic Log  
Samples studied and  
described by:  
Robert C. Milici  
Virginia Division of  
Mineral Resources  
January, 1963

### GEOLOGIC LOG

<u>Depth</u>	<u>Interval</u>	<u>Description</u>
	<u>Pennsylvanian System</u> [0-(1737-1769)]	
	<u>Pottsville Group</u> [0-(1737-1769)]	
	<u>Norton formation</u> (0-605)	
0 - 27	27	No sample
27 - 35	8	Siltstone, medium-gray with rare reddish brown, hard, brittle, argillaceous matrix; with: common sandstone, white or tan, well cemented, fine-to medium-grained, medium sorted, subrounded, siliceous. Slightly porous.
35 - 43	8	No sample
44 - 50	6	Sandstone, white, moderately cemented, very fine-grained, medium-sorted, subangular, calcareous cement, with: common muscovite, and chlorite. Slightly porous.
50 - 56	6	Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium-sorted, subangular, siliceous cement, locally very slightly calcareous with: rare magnetite ?, common chlorite and muscovite, and abundant iron oxide stains. Slightly porous.
56 - 60	4	Sandstone, white, tan or clear, moderately cemented, very fine-to fine-grained, medium sorted, subangular, calcareous and siliceous cement, with: rare magnetite ?, common chlorite, mica, and iron oxide stains. Slightly porous.

60 - 64	4	Siltstone, medium gray, with common reddish brown, hard, brittle, argillaceous matrix.
64 - 73	9	Siltstone, medium gray, hard, brittle, argillaceous matrix.
73 - 83	10	Siltstone, medium gray, with rare reddish brown, hard, brittle, argillaceous, with: abundant very fine-grained mica, common, Sandstone, white, well cemented, very fine-grained, medium sorted, subangular to subrounded, siliceous cement, with: common chlorite and iron oxide staining.
83 - 87	4	Interbedded; Siltstone, medium gray, with common reddish brown, hard, brittle, argillaceous, with: common mica, with: Sandstone, white or tan, well cemented, very fine-grained, medium sorted, subangular to subrounded, siliceous cement, with: common chlorite and iron oxide staining. Slightly porous.
87 - 93	6	Interbedded; Sandstone, white, or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous and locally calcareous cement, with: common chlorite and iron oxide staining. Slightly porous; with: Siltstone, medium gray, moderately hard, brittle, argillaceous, with: common mica.
93 - 98	5	Sandstone, white, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous cement, with: common chlorite and iron oxide staining, and minor Siltstone stringers, medium-gray, hard, brittle, argillaceous, with: rare mica. Slightly porous.
98 - 103	5	Interbedded; Sandstone, white, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous and locally calcareous cement, with: common chlorite and iron oxide staining, and abundant muscovite. Slightly porous, with Siltstone, medium gray, moderate hard, brittle, argillaceous, with: common mica.

103 - 107	4	Siltstone, medium gray, moderately hard, brittle, argillaceous, locally very slightly calcareous, with: abundant mica. Contains Sandstone contamination.
107 - 120	13	Siltstone, medium gray, or brownish gray, hard, brittle, argillaceous, with: common mica.
120 - 130	10	Siltstone, medium gray, brownish or greenish gray, hard, brittle, argillaceous, with: rare mica.
130 - 150	20	Interbedded; Siltstone, medium gray or reddish brown, hard, brittle, argillaceous, with: common mica, with: Sandstone, white, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous cement, locally calcareous, with: abundant chlorite, muscovite, and biotite. Slightly porous.
150 - 152	2	Sandstone, white, well cemented, very fine-to fine-grained, subangular to subrounded, siliceous and calcareous cement, with: common chlorite, muscovite, and biotite. Slightly porous.
152 - 155	3	Interbedded; Siltstone, medium gray, hard, brittle, argillaceous, with: rare mica, with: Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous and calcareous cement, with: common chlorite, and iron oxide staining. Slightly porous.
155 - 160	5	Siltstone, medium gray and reddish brown, hard, brittle, argillaceous.
160 - 164	4	Siltstone, medium gray and reddish brown, hard, brittle, argillaceous, with: common mica.
164 - 167	3	Siltstone, medium gray, hard, brittle, argillaceous, with rare mica.
167 - 172	5	Siltstone, medium gray and reddish-brown, hard, brittle, argillaceous, with common mica.

172 - 177	5	Siltstone, medium gray, light tan, and reddish-brown, hard or moderately hard, brittle, argillaceous, with: rare pyrite and common mica.
177 - 182	5	Siltstone, medium gray, light tan, and reddish-brown, hard, brittle, with rare carbonaceous material.
182 - 187	5	Siltstone, medium gray, light tan, and reddish-brown, hard, brittle, argillaceous.
187 - 190	3	Sandstone, white, well cemented, very fine- to fine-grained, medium sorted, subangular to subrounded, siliceous and calcareous cement, with: abundant muscovite, chlorite, and iron staining. Slightly porous.
190 <u>Raven Coal</u>		
190 - 191	1	Coal, black, vitreous, conchoidal fracture (interpreted depth and thickness).
191 - 195	4	Sandstone, white, well cemented, very fine- to fine-grained, medium sorted, subangular to subrounded, siliceous cement, with: common chlorite, mica and iron staining. Slightly porous.
195 - 233	38	Sandstone, white, well cemented, very fine- to fine-grained; medium sorted, subangular to subrounded, siliceous and calcareous cement, with: common chlorite, muscovite, and iron staining. Slightly porous.
233 - 236	3	Siltstone, medium gray, hard, brittle, argillaceous, with: common mica.
236 - 242	6	Siltstone, medium gray, light tan, and reddish-brown, hard, brittle, argillaceous.
247 - 250	3	Siltstone, medium gray and reddish brown, hard, brittle, argillaceous.
250 - 253	3	Siltstone, medium gray, hard, brittle, argillaceous with: common mica.
253 - 277	29 <sup>+</sup>	Siltstone, medium gray and reddish brown, hard, brittle, argillaceous, with: common mica.

277 - 282	5	Interbedded; Siltstone, medium gray, and reddish brown, hard, brittle, argillaceous, with: common coal, and Sandstone, white, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, with: common muscovite and iron oxide staining. Slightly porous.
282 - 285	3	Interbedded; Siltstone, medium gray and reddish-brown, hard, brittle, argillaceous, with: abundant coal and mica, and Sandstone, white, well cemented, very fine-grained, medium-sorted, subangular to subrounded, siliceous, with: common muscovite, chlorite, and iron oxide staining. Slightly porous.
285 - 287	2	Coal, black, vitreous, conchoidal fracture (interpreted depth and thickness).
287 - 293	6	Sandstone, white, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, with: common chlorite, abundant muscovite, and iron oxide staining. Slightly porous.
293 - 297	4	Sandstone, white moderately to well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, calcareous, with: common chlorite, abundant muscovite and iron oxide staining. Slightly porous.
297 - 303	6	Interbedded; Sandstone, white, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, calcareous, with: common chlorite, abundant muscovite, and iron oxide staining. Slightly porous. Siltstone, medium gray and reddish brown, hard, brittle, argillaceous and carbonaceous, with: common mica, rare coal
303 - 306	3	Sandstone, white, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, with: rare chlorite, abundant iron oxide staining and muscovite. Slightly porous.
306 - 308	2	Sandstone, white, moderately cemented, very fine-grained, medium sorted, subangular to subrounded, siliceous and calcareous cement, with: abundant chlorite, muscovite, and iron oxide staining. Slightly porous.

- 308 - 310            2            Sandstone, white, tan or brown, well cemented, fine-grained, medium sorted, subangular to subrounded, calcareous, with: common chlorite and biotite, and abundant muscovite and iron oxide staining. Slightly porous.
- 310 - 319            9            Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous and calcareous cement, with: common chlorite, coal fragments, muscovite, and abundant iron oxide staining. Slightly porous.
- 319 - 321            2            Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium-sorted, subangular to subrounded, siliceous and calcareous cement, with: rare biotite, common chlorite, muscovite, and abundant iron oxide staining, abundant Siltstone, medium gray, hard, brittle, argillaceous and carbonaceous. Slightly porous.
- 321 - 324            3            Sandstone, white, or tan, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common biotite, muscovite, chlorite, and abundant iron oxide staining, coal fragments, abundant Siltstone, medium-grained, hard, brittle, argillaceous and carbonaceous. Slightly porous.
- 321 - 322            1            Coal, black, vitreous (interpreted depth and thickness).
- 322 - 326            4            Sandstone, white or tan, moderately cemented, very-fine to fine-grained, medium sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common chlorite and muscovite, and abundant iron oxide staining. Slightly porous.
- 326 - 333            7            \* Sandstone, white or tan, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, very slightly calcareous, with: rare muscovite, common chlorite, and biotite, and abundant iron oxide staining, abundant Siltstone, medium gray or reddish-brown, hard, brittle, argillaceous and carbonaceous. Slightly porous.

333 - 337	4		Interbedded; Siltstone, medium gray, hard, brittle, argillaceous and carbonaceous, and Sandstone, white or tan, well cemented, very fine to fine-grained, medium sorted, subangular to subrounded, siliceous, very slightly calcareous, with: rare muscovite, chlorite and coal fragments, and common iron oxide staining. Slightly porous.
337 - 341	4		Siltstone, medium gray, hard, brittle, argillaceous, and carbonaceous.
341 - 348	7		Siltstone, medium to light gray, hard, brittle, argillaceous and carbonaceous, with: abundant mica.
348 - 354	6	*	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare biotite and unidentified red mineral, abundant iron oxide and muscovite. Slightly porous.
<u>Jawbone Coal (354)</u>			
354 - 358	4	*	Sandstone, white or tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare chlorite and abundant muscovite, iron oxide staining and Coal fragments. Slightly porous.
358 - 360	2		Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, with: common chlorite and biotite, and abundant iron oxide staining and muscovite. Slightly porous.
360 - 372	12		Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, slightly calcareous, with common chlorite, muscovite, and biotite, and abundant iron oxide staining. Slightly porous.
372 - 374	2		No sample
374 - 380	6		Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, calcareous, with: rare muscovite, common chlorite and biotite and abundant iron oxide staining. Slightly porous.

380 - 383	3	Sandstone, white or tan, moderately cemented, very-fine to fine-grained, medium sorted, subangular to subrounded, siliceous, very slightly calcareous; with: rare muscovite, common chlorite and biotite, and abundant iron oxide staining. Slightly porous.
383 - 387	4	Interbedded; Sandstone, white or tan, well cemented, very fine to fine-grained, medium sorted, subangular to subrounded, siliceous: with rare muscovite and biotite, common chlorite, and abundant iron oxide staining. Slightly porous. Siltstone, light to medium gray, hard, brittle, argillaceous.
387 - 394	7	Siltstone, medium gray or reddish-brown, hard, brittle, argillaceous.
394 - 399	6	Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous.
399 - 414	15	Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, with: common mica.
414 - 423	9	Siltstone, medium gray or reddish brown, hard, brittle, argillaceous, with: rare <sup>1</sup> mica and coal fragments.
423 - 426	3	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous: with, common biotite and iron oxide staining. Slightly porous.
426 - 431	5	Sandstone, white or tan, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, with: abundant chlorite, muscovite, iron oxide staining, biotite. Slightly porous.
431 - 440	9	Sandstone, white ro tan, well cemented, fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common muscovite and chlorite, and abundant biotite and iron oxide staining. Slightly porous.
440 - 466	6	Sandstone, white or tan, well cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous and calcareous, with: common muscovite, chlorite, abundant biotite and iron oxide stains. Slightly porous.

466 - 478	12	Sandstone, white or tan, well cemented, very fine-to fine-grained, medium sorted, sub-angular to subrounded, siliceous, very slightly calcareous, with: common muscovite and chlorite, and abundant biotite and iron oxide stains. Slightly porous.
478 - 488	10	Siltstone, medium gray, hard, brittle, argillaceous.
488 - 514	26	Siltstone, medium gray to reddish brown, hard, brittle, argillaceous.
514 - 520	6	Siltstone, light to medium gray, hard, brittle, argillaceous, with: common mica.
520 - 529	9	Siltstone, light to medium gray and reddish brown, hard, brittle, argillaceous and calcareous, with: common mica.
529 - 544	15	Siltstone, medium gray, hard, brittle, argillaceous.
544 - 547	3	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: common muscovite and iron oxide staining. Slightly porous.
547 - 550	3	Interbedded; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare chlorite, common muscovite and biotite, and abundant iron oxide staining. Slightly porous, and Siltstone, light to medium gray, hard, brittle, argillaceous.
550 - 553	3	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare chlorite, and coal fragments, common muscovite, biotite, and iron oxide staining. Slightly porous.
553 - 560	7	Sandstone, white or tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common biotite, and muscovite. Slightly porous.
560 - 580	10	Siltstone, light to medium gray, hard, brittle, argillaceous, with: common mica.

580 - 605      25      Interbedded; Siltstone, medium gray, hard, brittle, argillaceous and carbonaceous, with: common mica; and Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: common muscovite and iron oxide staining. Slightly porous.

Lee formation [ 605-(1737-1769) ]

605 - 617      12      Interbedded; Siltstone and Sandstone, as in 580 to 605.

617 - 631      14      No sample

\* 631 = 648      67      Sandstone, white or tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare chlorite and muscovite, and common iron oxide staining. Slightly porous.

648 - 654      6      Sandstone, white or tan, moderately cemented, very fine-to fine-grained, medium sorted, subangular to subrounded, siliceous, with: rare chlorite, common iron oxide staining. Slightly porous.

654 - 661      7      Sandstone, white or tan, well cemented, very fine-grained to granule conglomeratic, poorly sorted, subangular to subrounded, siliceous, with: rare chlorite, muscovite, and iron oxide staining. Slightly porous.

661 - 662      1      Sandstone, white or tan, moderately cemented, very fine-to fine-grained, subangular to subrounded, siliceous, with: rare muscovite and iron oxide staining. Slightly porous.

662 - 669      7      Sandstone, white or tan, moderately cemented, very fine-grained, to granule conglomeratic, poorly sorted, subangular to subrounded, siliceous, with: rare-chlorite, muscovite, and common iron oxide staining. Slightly porous.

669 - 684      15      Sandstone, white or tan, moderately cemented, very fine-grained to granule conglomeratic, poorly sorted, subangular to subrounded, siliceous, with rare chlorite, muscovite, common biotite and iron oxide staining. Slightly porous.

684 - 698	14	Sandstone, white or tan, moderately cemented, medium-grained to granule conglomeratic, poorly sorted, subangular to subrounded, siliceous, with: rare chlorite. Slightly porous.
698 - 704	6	Siltstone, medium gray or reddish brown, hard, brittle, argillaceous or ferruginous, with: common mica.
704 - 712	8	Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, carbonaceous or ferruginous, with: common mica and coal fragments.
712 - 717	5	Interbedded; Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, carbonaceous or ferruginous, with: common mica and coal fragments, with: Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: abundant muscovite and iron oxide staining. Slightly porous.
717 - 724	7	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: abundant muscovite and iron oxide staining. Slightly porous.
724 - 755	31	Sandstone, white or tan, well cemented, very fine-grained to fine-grained, medium sorted, subangular to subrounded, siliceous, and calcareous, with: common chlorite, abundant muscovite, biotite and iron oxide staining. Slightly porous.
755 - 769	14	Sandstone, white or tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: rare chlorite, common muscovite, and abundant iron oxide staining. Slightly porous.
769 - 783	14	Sandstone, white or tan, moderately cemented, very fine-to fine-grained, moderately sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common chlorite and muscovite, and abundant biotite and iron oxide staining. Slightly porous.
783 - 784	1	Coal, black, vitreous, conchoidal fracture (interpreted depth and thickness).
784 - 788	4	Siltstone, medium gray, hard to moderately soft,

(cont'd)		
784 - 788	4	brittle, argillaceous, carbonaceous, with: common mica.
788 - 793	5	Interbedded; Siltstone, medium gray, hard, brittle, argillaceous, with: rare coal fragments and common mica; with: Sandstone, white or tan, well cemented, very fine-to medium- grained, poorly sorted, subangular to subrounded, siliceous, with: common biotite and muscovite, and abundant iron oxide staining. Slightly porous.
793 - 805	12	Interbedded; Siltstone, medium gray, hard, brittle, argillaceous, with: common mica, with, Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, and calcareous, with: common biotite, and abundant muscovite and iron oxide staining.
805 - 824	19	Siltstone, light to medium gray, moderately hard to hard, brittle, argillaceous, and carbonaceous, with, abundant mica.
824 - 831	7	Interbedded, medium gray, hard, brittle, argillaceous and carbonaceous, with: common mica and coal fragments, with Sandstone, white or tan, well cemented, very fine- grained, well sorted, subangular to subrounded, siliceous and calcareous, with: common muscovite, biotite and iron oxide staining. Slightly porous.
831 - 847	16	Interbedded; Siltstone, medium gray, hard, brittle, argillaceous, with: common mica, with; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous and calcareous, with: rare carbonaceous partings, muscovite, biotite, and iron oxide staining. Slightly porous.
847 - 851	4	Interbedded; Siltstone, light to medium gray, hard, brittle, argillaceous, with: common mica, with; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare carbonaceous partings, biotite, and common muscovite. Slightly porous.
851 - 858	7	Interbedded; Siltstone, light to medium gray, moderately hard to moderately soft, tough, brittle, argillaceous, with: common mica, with; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to sub-

(cont'd)		
851 - 858	7	rounded, siliceous and calcareous, with; rare biotite, common muscovite and iron oxide staining. Slightly porous.
858 - 867	9	Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, and carbonaceous, with: common mica.
867 - 872	5	Siltstone, medium gray, hard, brittle, argillaceous, with: common mica.
872 - 885	13	Siltstone, light to medium gray, moderately hard, brittle, argillaceous and carbonaceous, with: common mica.
885 - 914	29	Sandstone, white or tan, well cemented, very fine to fine-grained, medium sorted, subangular to subrounded, siliceous, very slightly calcareous to calcareous, with: common chlorite, muscovite, and abundant biotite and iron oxide staining. Slightly porous.
914 - 920	6	No sample
920 - 935	15	Siltstone, medium gray, moderately hard, brittle argillaceous, with: common mica.
935 - 950	15	Siltstone, medium gray or reddish brown, moderately hard, brittle, argillaceous, or carbonaceous, with: common mica.
950 - 977	27	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with; common chlorite and muscovite, abundant biotite and iron oxide staining. Slightly porous.
977 - 988	11	Interbedded; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common chlorite and muscovite, abundant biotite and iron oxide staining. Slightly porous. Shale, medium gray, moderately soft to soft, flaky, no bedding apparent, carbonaceous, with: rare coal fragments.

988 - 1009	21	Interbedded; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous to calcareous, with: common chlorite and muscovite, and abundant biotite and iron oxide staining. Slightly porous. Siltstone, medium gray, moderately hard, brittle, carbonaceous, argillaceous, with: rare coal fragments, common mica.
1009 - 1015	6	Siltstone, light to medium gray or reddish brown, moderately hard, brittle, argillaceous, with: common mica.
1015 - 1037	22	Siltstone, medium gray, hard, brittle, argillaceous, with: common mica.
1037 - 1046	9	No sample.
1046 - 1052	6	Interbedded; Siltstone, medium gray or reddish brown, hard, brittle, argillaceous, with: common mica, and Sandstone, tan, well cemented very fine-to fine-grained, moderately sorted, subangular to subrounded, siliceous, very slightly calcareous, with: abundant biotite and iron oxide staining. Slightly porous.
1052 - 1055	3	Siltstone, grading toward shale, medium gray or reddish brown, moderately hard to moderately soft, flaky, carbonaceous, with: common coal fragments.
1055 - 1083	29	Sandstone, white or tan, well cemented, very fine-to fine-grained, moderately sorted, subangular to subrounded, siliceous, with: rare muscovite and common iron oxide staining. Slightly porous.
1083 - 1084	1	Coal, black, vitreous, conchoidal fracture . (interpreted depth and thickness).
1083 - 1095	8	Interbedded; Siltstone, grading toward very fine-grained Sandstone, very light to medium gray, hard, brittle, argillaceous, with: abundant mica, and Shale, medium gray, moderately soft, brittle, carbonaceous.

1095 - 1112	17	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: common chlorite, muscovite, iron oxide staining and abundant biotite. Slightly porous.
1112 - 1125	13	Siltstone, light to medium gray or reddish brown, moderately hard, brittle, argillaceous, with: common mica.
1125 - 1130	5	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: common chlorite, muscovite, iron oxide staining, and abundant biotite. Slightly porous.
1130 - 1141.5	11.5	Sandstone, white or tan, well cemented, very fine-to fine-grained, moderately sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common chlorite, muscovite, iron oxide staining, and abundant biotite. Slightly porous.
1141.5 - 1142	.5	Coal, black, vitreous, conchoidal fracture. Interpreted depth and thickness.
1142 - 1164	22	Siltstone, grading toward very fine-grained sandstone, light to medium gray, hard to moderately hard, brittle, argillaceous and carbonaceous, with: common mica.
1164 - 1171	7	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common chlorite and iron oxide staining, and abundant biotite. Slightly porous.
1171 - 1192	21	Siltstone, grading toward very fine-grained Sandstone, light to medium gray or reddish brown, hard, brittle, argillaceous, with: common mica.
1192 - 1210	18	Interbedded Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, with: common mica. Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare chlorite, common iron oxide staining, and abundant biotite. Slightly porous.

1210 - 1218	8	Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, with: common mica.
1218 - 1225	7	Siltstone, grading to very fine-grained, Sandstone, light to medium gray, hard, brittle, argillaceous, with: common mica.
1225 - 1234	9	Siltstone, grading to very fine-grained Sandstone, light to medium gray, moderately hard to moderately soft, brittle, argillaceous, carbonaceous, with: common mica.
1234 - 1236	2	Coal, black, vitreous, conchoidal fracture. Interpreted depth and thickness.
1236 - 1254	18	Siltstone, grading to very fine-grained Sandstone, light to medium gray or tan, hard, brittle, argillaceous, carbonaceous, with: common mica.
1254 - 1263	9	Sandstone, tan, well cemented, very fine-grained, well sorted, subangular to sub-rounded, calcareous, with: common mica and coal fragments, and abundant iron oxide staining. Slightly porous.
1263 - 1274	9	Interbedded; Sandstone, tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous and calcareous, with: rare coal fragments, common muscovite, biotite, and iron oxide staining. Slightly porous. Siltstone, light to medium gray, hard, brittle, argillaceous, with: common mica.
1274 - 1286	12	Siltstone, light to medium gray, hard, brittle, argillaceous, with: abundant mica.
1286 - 1296	10	Sandstone, tan, well cemented, very fine-grained, well sorted, subangular to sub-rounded, siliceous, with: common chlorite, muscovite and biotite, and abundant iron oxide staining. Slightly porous.
1296 - 1310	14	Shale, greenish gray or reddish brown, moderately hard to moderately soft, argillaceous.

1310 - 1320	10	Siltstone, light to medium gray, moderately hard, brittle, argillaceous, with: rare coal fragments and common mica.
1320 - 1327	7	Interbedded; Sandstone, white or tan, well cemented, very fine-grained, well sorted, sub-angular to subrounded, siliceous, very slightly calcareous, with: common muscovite, chlorite, abundant biotite and iron oxide staining. Slightly porous. Siltstone, grading to shale, light to medium gray or reddish brown, hard to moderately hard, argillaceous, with: common mica.
1327 - 1344	17	Sandstone, tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: rare coal fragments, common muscovite, abundant biotite, chlorite and iron oxide staining, and minor stringers of Siltstone, medium gray or reddish brown, moderately hard, brittle, argillaceous or carbonaceous, with: common mica. Slightly porous.
1344 - 1350	6	No sample
1350 - 1355	5	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common muscovite and chlorite, and abundant biotite and iron oxide staining. Slightly porous.
1355 - 1370	15	Shale, grading to Siltstone, medium gray or reddish brown, moderately hard, brittle, argillaceous or carbonaceous.
1370 - 1394	24	Sandstone, white or tan, well cemented, very fine-to very coarse-grained, poorly sorted, subangular to subrounded, siliceous, calcareous, with: common chlorite, muscovite, biotite, iron oxide staining, and coal fragments. Slightly porous.
1394 - 1407	13	Sandstone, white or tan, well cemented, very fine to coarse-grained, medium sorted, subangular to subrounded, siliceous, calcareous, with: common chlorite, muscovite, biotite, coal fragments, and iron oxide staining, and minor stringers of Shale, grading to Siltstone, medium gray or reddish brown, moderately hard to moderately soft, brittle, argillaceous and carbonaceous. Slightly porous.

1407 - 1419	12	Sandstone, tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with common muscovite and chlorite, and coal fragments, abundant biotite and iron oxide staining, and minor stringers of Shale, medium gray, moderately soft, brittle, carbonaceous. Slightly porous.
1419 - 1444	25	Sandstone, white or tan, moderately cemented, very fine-to fine-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with common chlorite, muscovite, abundant biotite and iron oxide staining, and minor stringers of Siltstone, medium gray or reddish brown, moderately soft to soft, brittle, argillaceous or carbonaceous. Slightly porous.
1444 - 1493	49	Sandstone, white or tan, poorly cemented, fine-grained to granule conglomeratic, poorly sorted, subangular to subrounded, siliceous, slightly calcareous, with rare chlorite and muscovite, common biotite, and abundant iron oxide staining, and minor stringers of Siltstone, medium gray, moderately hard to moderately soft, brittle, argillaceous or carbonaceous. Slightly porous.
1493 - 1498	5	Sandstone, white or tan, poorly cemented, fine-to medium-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with rare chlorite and muscovite, common biotite, and abundant iron oxide staining. Slightly porous.
1498 - 1506	8	Sandstone, white or tan, poorly cemented, fine-to medium-grained, well sorted, subangular to subrounded, siliceous, with rare chlorite and muscovite, and common biotite and iron oxide staining. Slightly porous.
1506 - 1509	3	Sandstone, white, poorly cemented, fine-grained to granule conglomeratic, poorly sorted, subangular to subrounded, siliceous, with rare chlorite. Slightly porous.

1509 - 1521	12	Interbedded; Coal, black, vitreous, conchoidal and blocky fracture, and Siltstone, medium to dark gray, moderately hard to moderately soft, brittle, carbonaceous.
1521 - 1530	9	Interbedded, Siltstone, light to dark gray, or reddish brown, moderately hard to moderately soft, brittle, carbonaceous, and Sandstone, grading to siltstone, tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with common muscovite and coal fragments. Slightly porous.
1530 - 1545	15	Interbedded; Coal, black, vitreous, conchoidal and blocky fracture, and Siltstone, grading to very fine-grained Sandstone, tan, light to medium gray or reddish brown, moderately hard to moderately soft, brittle, carbonaceous.
1545 - 1560	15	Sandstone, white or tan, moderately cemented, very fine-to medium-grained, moderately sorted, subangular to subrounded, calcareous, with: common chlorite, muscovite and iron oxide staining. Slightly porous.
1560 - 1566	6	No sample
1566 - 1574	8	Sandstone, white or tan, moderately cemented, very fine-to medium-grained, moderately sorted, subangular to subrounded, siliceous, slightly calcareous, with: common chlorite, muscovite, abundant biotite and iron oxide staining. Slightly porous.
1574 - 1606	32	Interbedded; Siltstone, light to medium gray, hard, brittle, argillaceous, with: common mica, and Sandstone, white, or tan, moderately cemented, fine-to medium-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with: common chlorite, muscovite, biotite, and iron oxide staining. Slightly porous.
1606 - 1612	6	No sample
1612 - 1627	15	Sandstone, tan, moderately cemented, very fine-to fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with: common chlorite, abundant muscovite, biotite and iron staining. Slightly porous.

1627 - 1640	13	Interbedded; Siltstone, light to medium gray or reddish brown, moderately hard, brittle, argillaceous, with: common mica, and Sandstone, tan, moderately cemented, very fine-to fine-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with: common chlorite and muscovite, abundant biotite and iron oxide staining. Slightly porous.
1640 - 1683	43	Sandstone, white or tan, moderately cemented, medium-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with: common chlorite, muscovite, iron oxide staining, abundant biotite, with: minor stringers of Siltstone, light to medium gray, or reddish brown, hard to moderately hard, brittle, argillaceous or carbonaceous. Slightly porous.
1683 - 1714	31	Shale, grading to siltstone, light gray or reddish brown, hard, brittle, argillaceous, with: common mica.
1714 - 1732	18	Interbedded, Shale, grading to siltstone, light to medium gray or reddish brown, moderately hard, brittle, argillaceous or carbonaceous, with: rare coal fragments, and Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous. Slightly porous.
1732 - 1734	2	Coal, black, vitreous, conchoidal or blocky fracture. Interpreted depth and thickness.
1734 - 1737	3	Interbedded; Shale, medium gray or reddish brown, moderately hard to moderately soft, brittle, carbonaceous, and Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous. Slightly porous.

Mississippian System / (1737-1769)-T. D. /

Pennington Group / (1737-1769)-3032 /

Bluestone formation / (1737-1769)-2240 /

1737 - 1769	32	No sample
1769 - 1810	41	Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, with: common mica.

1810 - 1816	6	Shale, grading to siltstone, light to medium gray, reddish brown, greenish gray, light tan, moderately hard to moderately soft, brittle, argillaceous, with: abundant silt sized chert specks.
1816 - 1825	9	Sandstone, white or greenish, well cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common muscovite and biotite, and abundant chlorite and iron oxide staining. Slightly porous.
1825 - 1835	10	Shale, light gray, greenish gray, moderately hard, brittle, argillaceous.
1835 - 1845	10	Shale, grading to siltstone, greenish gray or reddish brown, moderately hard, brittle, argillaceous.
1845 - 1860	15	Shale, grading to siltstone, greenish gray or reddish brown, moderately hard, brittle, argillaceous, calcareous.
1860 - 1867	7	Interbedded, Shale, greenish gray or reddish brown, moderately hard, brittle, argillaceous, and Siltstone, light to medium gray, hard, brittle, argillaceous, with: common mica.
1867 - 1920	53	Siltstone, grading to shale, light gray, greenish gray, or reddish brown, hard to moderately hard, brittle, argillaceous and calcareous, with: common mica.
1920 - 1931	11	No sample
1931 - 1988	57	Interbedded; Siltstone, grading to shale, light gray, greenish gray, reddish brown, moderately hard, brittle, argillaceous and calcareous, and Sandstone, white or greenish, well cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, siliceous, with: common chlorite and biotite. Slightly porous.
1988 - 2000	12	Siltstone, light gray, greenish gray, tan, reddish brown, hard, brittle, argillaceous, with: common mica.

2000 - 2047	47	Siltstone, grading to very fine-grained sandstone, white, tan, light gray, greenish gray, or reddish brown, hard, brittle, argillaceous, calcareous, with: common mica.
2047 - 2049	2	No sample.
2049 - 2072	23	Interbedded; Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous, with: common mica, and Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with: rare muscovite, common biotite. Slightly porous.
2072 - 2080	8	Siltstone, light to medium gray, greenish gray or reddish brown, hard, brittle, argillaceous.
2080 - 2084	4	Siltstone, grading to shale, light to medium gray, greenish gray or reddish brown, hard, brittle, argillaceous, with: common mica and minor stringers of Sandstone, tan, poorly cemented, very fine-grained, well sorted, subangular to subrounded, calcareous. Slightly porous.
2084 - 2105	21	Siltstone, grading to shale, light to medium gray, greenish gray or reddish brown, hard, brittle, argillaceous or carbonaceous, with: common mica and minor stringers of Sandstone, white or tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with: common biotite and iron oxide staining. Slightly porous.
2105 - 2111	6	Interbedded; Sandstone, tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common biotite, and Siltstone, light to medium gray or reddish brown, hard, brittle, argillaceous carbonaceous, with common mica. Slightly porous.
2111 - 2118	7	Interbedded; Sandstone, tan, moderately cemented very fine-grained, well sorted, subangular to subrounded, calcareous, with: common biotite, and iron staining. Slightly porous. Siltstone, light to medium gray, greenish gray or reddish brown, hard to moderately hard, brittle, argillaceous or carbonaceous, with: rare coal fragments, common mica.

2118 - 2125 7

Interbedded; Sandstone, tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: abundant biotite and iron oxide staining. Slightly porous. Siltstone, light to medium gray, greenish gray or reddish brown, hard to moderately hard, brittle, argillaceous or carbonaceous, with: common mica.

2125 - 2140 15

Interbedded; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: abundant biotite. Slightly porous. Siltstone light to medium gray, hard, brittle, argillaceous, with: common mica.

2140 - 2165 25

Siltstone, light to medium gray or reddish brown, hard, brittle, platy, argillaceous, calcareous, with: rare calcite fragments and common mica.

2165 - 2230 65

100'

Siltstone, grading to shale, light to medium gray, hard, brittle, platy, argillaceous, calcareous, with: common mica.

2230 - 2240 10

Siltstone, grading to shale, light to medium gray or reddish brown, hard, brittle, platy, argillaceous, with; common mica.

Princeton sandstone (2240-2420)

2240 - 2245 5

Interbedded; Siltstone, grading to shale, light to medium gray or reddish brown, hard, brittle, platy, argillaceous, with: common mica, and Sandstone, white, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common chlorite and muscovite, abundant biotite. Slightly porous.

2250 - 2260 10

Siltstone, grading to shale, light to medium gray, hard, brittle, argillaceous, with: common mica.

2260 - 2299 39

Shale, grading to siltstone, light to medium gray, hard, brittle, platy, argillaceous, with: rare mica.

- 2299 - 2304 5 Interbedded; Siltstone, grading to shale, light to medium gray, moderately hard, brittle, platy, argillaceous, and Sandstone, tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common biotite. Slightly porous.
- 2304 - 2312 8 Siltstone, light to medium gray, hard, brittle, platy, argillaceous, calcareous, with: common mica and minor stringers of Sandstone, tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous. Slightly porous.
- 2312 - 2344 32 Siltstone, light to medium gray, hard, brittle, platy, argillaceous, with: common mica.
- 2344 - 2348 4 Interbedded; Siltstone, grading to shale, light to medium gray, hard, brittle, platy, argillaceous, and Sandstone, white or tan, moderately cemented, very fine-to coarse-grained, poorly sorted, subangular to subrounded, siliceous, calcareous, with: rare biotite, common iron oxide staining. Slightly porous.
- 2348 - 2357 9 Sandstone, tan, moderately cemented, fine-to coarse-grained, poorly sorted, angular to subrounded, siliceous, calcareous, with: rare biotite, abundant iron oxide staining, with: minor stringers of siltstone, grading to shale, light to medium gray, hard, brittle, argillaceous, carbonaceous, with: rare mica.
- 2357 - 2371 14 Interbedded, Shale, grading to siltstone, light to medium gray, or reddish brown, moderately hard, brittle, calcareous, argillaceous, and Sandstone, white or tan, moderately cemented, medium-grained to granule, conglomeratic, poorly sorted, angular to subrounded, calcareous
- 2371 - 2375 4 Sandstone, tan, moderately cemented, very-fine to medium-grained, poorly sorted, angular to subangular, calcareous, with: abundant iron oxide staining, and minor stringers of siltstone, light to medium gray, moderately hard, brittle, argillaceous, with: common mica. Slightly porous.

- 2375 - 2380      5      Sandstone, white, moderately cemented, very fine-to fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with: stringers of Siltstone, grading to shale, medium gray, moderately hard, brittle, platy, argillaceous, slightly carbonaceous. Slightly porous.
- 2380 - 2389      9      Sandstone, tan, moderately cemented, very fine-grained, to granule conglomeratic, poorly sorted, subangular to subrounded, siliceous, calcareous, with: stringers of Siltstone, grading to shale, medium gray, moderately hard, brittle, platy, argillaceous, slightly carbonaceous. Slightly porous.
- 2389 - 2392      3      Sandstone, white, moderately cemented, very fine-to fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with: stringers of Siltstone, grading to shale, medium gray, moderately hard, brittle, platy, argillaceous. Slightly porous.
- 2392 - 2400      8      Sandstone, tan, moderately to poorly cemented, very fine-to fine-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with: rare muscovite, abundant iron oxide staining, and stringers of Siltstone, grading to shale, medium gray, hard, brittle, argillaceous, Slightly porous.
- 2400 - 2401      1      Sandstone, white poorly cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, slightly calcareous, with: common iron oxide staining. Slightly porous.
- 2401 - 2412      11      No sample
- 2412 - 2417      5      Interbedded, Siltstone; medium gray, hard, brittle, argillaceous, with: common mica, and Sandstone, tan, moderately cemented, very fine-grained to granule conglomeratic, poorly sorted, angular to subrounded, siliceous, calcareous, with: abundant iron oxide staining. Slightly porous.

2417 - 2420	3	Sandstone, white, poorly cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common iron oxide staining. Slightly porous.
Hinton formation (2420-3032)		
2420 - 2478	58	Limestone, shaly, medium gray, rare fossil fragments (crinoid stems, brachiopods), moderately hard, crypto-to microcrystalline, with: common calcite fragments.
2478 - 2491	13	Interbedded; Limestone, light to medium gray or greenish gray, rare fossil fragments (crinoid stems), moderately hard, crypto-to microcrystalline, with: common calcite fragments, and Shale, maroon or light green, moderately hard, brittle, argillaceous.
2491 - 2495	4	Shale; maroon or light green, moderately hard, brittle, argillaceous, with: common calcite fragments.
2495 - 2506	11	No sample
2506 - 2511	5	Interbedded; Shale, maroon or light green, moderately hard, brittle, argillaceous, with: common calcite fragments, and Sandstone, white or greenish, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: abundant chlorite. Slightly porous.
2511 - 2530	19	Siltstone grading to shale, maroon, greenish, or medium gray, moderately hard, brittle, argillaceous, with: common calcite fragments, and abundant muscovite.
2530 - 2532	2	Sandstone, grading to siltstone, maroon or reddish brown, poorly cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common muscovite. Slightly porous.
2532 - 2536	4	No sample
2536 - 2550	14	Sandstone, as in 2530-2532.

2550 - 2567	17	Sandstone, greenish gray or light gray, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with: common muscovite, abundant chlorite, and minor stringers of Siltstone, maroon or reddish brown, moderately hard, brittle, argillaceous. Slightly porous.
2567 - 2586	19	Shale, grading to siltstone, medium gray, moderately hard, brittle, platy, calcareous.
2586 - 2587	1	No sample
2587 - 2596	9	Shale, medium gray, greenish gray, or maroon, moderately hard, brittle, platy, calcareous.
2596 - 2604	8	Shale, grading to siltstone, maroon or greenish gray, moderately hard to moderately soft, brittle, argillaceous, with : common calcite fragments.
2604 - 2619	15	Siltstone, grading to shale, maroon, medium gray, greenish gray, moderately hard, brittle, argillaceous, slightly calcareous, with: common mica.
2619 - 2632	13	Siltstone, grading to shale, maroon or greenish gray, moderately hard, brittle, calcareous, with: common mica.
2632 - 2641	9	Shale, grading to siltstone, light to medium gray, greenish gray, or reddish brown, moderately hard, brittle, calcareous or dolomitic, with: common mica.
2641 - 2649	8	Siltstone, grading to shale, maroon or greenish gray, moderately hard, brittle, calcareous, with: common mica.
2649 - 2655	6	Sandstone, light tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common chlorite, abundant biotite. Slightly porous.
2655 - 2660	5	Interbedded; Siltstone, grading to shale, maroon, light gray, hard to moderately hard, brittle, argillaceous, with: common mica, and Sandstone, light tan, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common chlorite, muscovite, and biotite. Slightly porous.

2660 - 2663	3	Interbedded; Siltstone, grading to shale, medium gray, light gray, maroon or greenish, hard, brittle, argillaceous, with: abundant mica; and Sandstone, white or greenish, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: common chlorite, abundant muscovite and biotite. Slightly porous.
2663 - 2673	10	Interbedded; Shale, grading to siltstone, light to medium gray, maroon, hard, brittle, argillaceous, with: Sandstone, white, well cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: rare chlorite, common muscovite and biotite. Slightly porous.
2673 - 2692	19	Sandstone, white or greenish, moderately cemented, very fine-grained, well sorted, subangular to subrounded, calcareous, with: rare chlorite, common muscovite and biotite, and minor stringers of Siltstone, light gray or reddish brown, moderately hard, brittle, argillaceous, with: common mica. Slightly porous.
2692 - 2717	25	Interbedded; Sandstone, white or greenish, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with: rare chlorite, common muscovite and biotite, Slightly porous. and Siltstone, grading to shale, light to medium gray or reddish brown, hard, brittle, platy, argillaceous, with: common mica.
2717 - 2722	5	Siltstone, grading to shale, medium gray, hard, brittle, platy, argillaceous, with: common mica.
2722 - 2723	1	No sample
2723 - 2732	9	Siltstone, grading to very fine-grained Sandstone, light to medium gray, white or reddish brown, hard, brittle, argillaceous or calcareous, with: common mica.
2732 - 2742	10	No sample
2742 - 2760	18	As in 2723-2732.

2760 - 2768      8                      Shale, medium gray, greenish gray, or reddish brown hard, brittle, argillaceous.

Stony Gap sandstone member of the Hinton formation (2768-3032)

2768 - 2785      17                      Interbedded; Shale, medium gray, hard, brittle, platy, argillaceous, and Sandstone, white, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: rare chlorite, common biotite. Slightly porous.

2785 - 2786      1                      No sample

2786 - 2798      12                      Interbedded; Sandstone, white, moderately cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common biotite, abundant iron oxide staining. Slightly porous. Shale, medium gray or maroon, hard, brittle, platy, argillaceous.

2798 - 2820      22                      As in 2786-2798, but acid wets with difficulty.

2820 - 2835      15                      Sandstone, white or tan, poorly cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: common muscovite, abundant iron oxide staining, and minor stringers of Shale, medium gray, moderately hard, brittle, platy, argillaceous. Slightly porous.

2835 - 2859      4                      No sample

2839 - 2844      5                      Same as 2822-2835.

2844 - 2845      1                      No sample

2845 - 2867      22                      Sandstone, tan, poorly cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, very slightly calcareous, with: abundant iron oxide staining, and minor stringers of Shale, medium gray, moderately hard, brittle, platy, argillaceous. Slightly porous.

2867 - 2868	1	No sample
2868 - 2900	32	Interbedded; Sandstone, 70 percent, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: rare muscovite, common biotite, abundant iron oxide staining. Slightly porous. Shale, 30 percent, grading to siltstone, medium gray, or reddish brown, hard, brittle, platy, argillaceous, with: common mica.
2900 - 2907	7	Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, calcareous, with: rare pyrite, common muscovite and biotite, abundant iron oxide staining, and minor stringers of shale, hard, brittle, argillaceous.
2907 - 2916	9	Interbedded; Sandstone, white or tan, well cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: common muscovite and abundant biotite and iron oxide staining. Slightly porous. Siltstone, grading to shale, light to medium gray or reddish brown, hard, brittle, platy, argillaceous, with: common mica.
2916 - 2931	15	Sandstone, tan, poorly cemented, very fine-grained, well sorted, subangular to subrounded, siliceous, with: common muscovite and biotite, and abundant iron oxide staining, with minor stringers of Shale, grading to siltstone, light to medium gray or reddish brown, moderately hard, brittle, platy, argillaceous. Slightly porous.
2931 - 2936	5	Interbedded; Sandstone, white or tan, moderately cemented, very fine-grained, subangular to subrounded, siliceous, very slightly calcareous, with: common biotite, abundant iron oxide staining. Slightly porous. Shale, medium gray or reddish brown, moderately hard to moderately soft, brittle, platy, argillaceous.
2936 - 2939	3	Sandstone, tan, poorly cemented, very fine-grained, subangular to subrounded, siliceous, with: common muscovite, abundant biotite and iron oxide staining.

2939 - 2952	13	Interbedded; Sandstone, white or tan, well cemented, very fine-grained, subangular to subrounded, siliceous, with: common biotite, abundant iron oxide staining. Slightly porous. Siltstone, light to medium gray, hard, brittle, argillaceous, platy, with: common mica.
2952 - 2955	3	Interbedded, Sandstone, white or tan, well cemented, very fine-grained, subangular to subrounded, siliceous, calcareous, with: common biotite, abundant iron oxide staining. Slightly porous. Siltstone, light to medium gray or reddish brown, hard, brittle, platy, argillaceous, with: common mica.
2955 - 2970	15	Shale, grading to siltstone, light to medium gray, moderately hard, brittle, platy, argillaceous, with: common mica.
2970 - 2973	3	Siltstone, grading to very fine-grained Sandstone, light to medium gray, moderately hard to hard, brittle, platy, calcareous, with: rare pyrite, common mica.
2973 - 2982	19	Sandstone, white or tan, moderately cemented, very fine-grained, subangular to subrounded, siliceous, very slightly calcareous, rare pyrite, with: common iron oxide staining, biotite, abundant muscovite, and minor stringers of Siltstone, light to medium gray or reddish brown, moderately hard, brittle, platy, argillaceous or carbonaceous.
2982 - 2986	4	As in 2973 to 2982, with: rare coal fragments.
2986 - 3002	16	As in 2973 to 2982.
3002 - 3004	2	No sample
3004 - 3008	4	Sandstone, white, moderately cemented, very fine-grained, subangular to subrounded, siliceous, slightly calcareous, with: abundant biotite, and minor stringers of Shale, medium gray or reddish brown, moderately soft, brittle, argillaceous, with: common mica. Slightly porous.

- 3008 - 3014      6                      Siltstone, grading to very fine-grained Sandstone, light to medium gray or reddish brown, hard, brittle, platy, calcareous, with: common mica.
- 3014 - 3032      18                     Interbedded; Sandstone, white, moderately cemented, very fine-grained, subangular to subrounded, siliceous, with: abundant biotite, and Siltstone, light to medium gray, hard, brittle, platy, argillaceous, with: common mica.

Bluefield formation (3032 - T. D.)

- 3032 - 3045      13                     Shale, light to medium gray, or reddish brown, hard, brittle, platy, argillaceous.
- 3045 - 3071      26                     Shale, greenish gray or reddish brown, hard, brittle, platy, argillaceous.
- 3072 - 3106      28                     Interbedded; Sandstone, white or tan, well cemented, very fine-grained, subangular to subrounded, siliceous, very slightly calcareous, with: common iron oxide staining, abundant biotite. Slightly porous. Shale, brittle, platy, argillaceous.

T. D. 5804'

3101  
 3106  
 2420  
 -----  
 686

## GEOLOGIC SUMMARY

## Pennsylvanian System

Norton Formation	in	27
	bottom	605
Lee Formation	top	605
	bottom	1753 <sup>+</sup>

## Mississippian System

Bluestone Formation	top	1753 <sup>+</sup>
	bottom	2299
Princeton Sandstone	top	2299
	bottom	2420
Hinton Formation	top	2420
	bottom	3032
Stony Gap Sandstone	top	2768
	bottom	3032
Bluefield Formation	top	3032
	in	3106 (deepest sample)

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

September 1963

SUMMARY

		Norton formation (0-605')	Raven Coal (190')
Pennsylvanian System	Pottsville Group		Jawbone Coal (354')
<u>0-(1737'-1769')</u>	<u>0-(1737'-1769')</u>		
		Lee formation <u>605-(1737-1769)</u>	
		Bluestone formation <u>(1737'-1769')-2240'</u>	
	Pennington Group	Princeton sandstone (2240'-2420')	
Mississippian System	<u>(1737'-1769'-3032')</u>	Hinton formation (2420'-3032')	Stony Gap ss member (2768'-3032')
<u>(1737'-1769')-T. D.</u>		Bluefield formation (3032'-T. D.)	