

VDMR Well No. 340

Operator: Clinchfield Coal Company
Farm: Virginia Coal and Iron Company
Well No.: 144
Location: Wise County
1200' N. of 37° 00'
8500' E. of 82° 40'
Elevation: 2322.9'
Total Depth: 4006'
Drilling Commenced: October 11, 1958
Well Completed: March 21, 1959
Result: Gas well

Geologic log
Samples studied and described by
K. Robinson
Virginia Division of
Mineral Resources
May 1962

GEOLOGIC LOG

<u>Depth (Feet)</u>	<u>Thickness</u>	<u>Lithology</u>
<u>PENNSYLVANIAN SYSTEM</u>		
<u>Wise Formation (0' - 152')</u>		
0' - 40'	40'	Sandstone, white, friable to unconsolidated, fine to medium, commonly very fine to coarse and very coarse grained, moderately well sorted, subrounded, silty, siliceous.
40' - 53'	13'	Siltstone, light gray, moderately hard, locally sandy, siliceous with finely divided mica and carbonaceous material. Common stringers of Sandstone, fine to medium grained.
53' - 55'	2'	<u>Blair Coal</u> - estimated depth and thickness
55' - 105'	50'	Sandstone, white to light gray, friable to moderately hard, very fine to medium and coarse grained, graded, fair to poor sorting, angular to round, interstitially silty, siliceous with abundant mica, carbonaceous material and common chlorite. Poor to no apparent porosity. Common interbedded stringers of Siltstone, micaceous, light to medium gray and brown.
105' - 140'	35'	Equivalent Lyons Coal Horizon - estimated at 105'. No coal present. Siltstone, carbonaceous, medium to dark gray, moderately hard, siliceous with abundant finely divided mica and coaly carbonaceous material.
140' - 150'	10'	Sandstone, silty and micaceous, white to light and medium gray, moderately hard, very fine to silty, rarely fine to medium grained, well sorted, siliceous with abundant mica and carbonaceous material. Poor to no apparent porosity. Grades to Siltstone locally.

150' - 152'	2'	<u>Dorchester Coal</u> - argillaceous and impure, Estimated depth and thickness.
<u>Gladeville Sandstone</u>		(152' - 210')
152' - 161'	9'	Sandstone, as 140' - 150'.
161' - 170'	9'	Siltstone, argillaceous, medium gray, moderately hard, slightly fissile, siliceous with abundant mica and coaly carbonaceous material.
170' - 171'	1'	Coal, laminated, argillaceous and impure. (interpreted depth and thickness)
171' - 173'	2'	Shale, carbonaceous, medium to dark gray, fissile with fine laminae coal.
173' - 194'	21'	Sandstone, chloritic, white, fine to medium and commonly coarse grained, poorly sorted, subrounded to round, interstitially very silty, siliceous with abundant chlorite, mica and coaly carbonaceous material. Good to poor porosity.
194' - 196'	2'	Coal, laminated, generally argillaceous and impure. (interpreted depth and thickness)
196' - 200'	4'	Shale, medium to dark gray, carbonaceous, moderately hard and brittle, fair fissility with abundant fine coal laminae. (interpreted depth and thickness)
200' - 201'	1'	Coal, generally argillaceous and impure (interpreted depth and thickness)
201' - 203'	2'	Siltstone, medium to dark gray, coaly carbonaceous with abundant fine coal laminae. (interpreted depth and thickness)
203' - 219'	16'	Sandstone, white, fine to medium and commonly coarse grained as 173' - 194'.
<u>Norton Formation</u>		(219' - 1442')
219' - 221'	2'	<u>Norton Coal</u> - Coal, argillaceous and impure (interpreted depth and thickness)
221' - 224'	3'	Siltstone, medium to dark gray, carbonaceous with rare fine coal laminae (interpreted depth and thickness)
224' - 228'	4'	Sandstone, white, moderately hard, very fine to coarse grained, poorly sorted, subrounded to rounded, interstitially very silty, siliceous with abundant chlorite, mica and coaly carbonaceous material. Good to poor porosity. Common fragments limestone, dolomite,

dolomitic, silty, brown, hard, coarsely crystalline and impure.

228' - 305'	77'	Siltstone, light to medium gray, moderately hard, locally very finely sandy, siliceous and very calcareous (grades to non-calcareous in the lower 15'), with abundant finely divided carbonaceous material and mica. Common coaly carbonaceous laminae.
305' - 307'	2'	Coal, pure to silty and argillaceous.
307' - 325'	18'	Sandstone, micaceous, white, friable, fine to rarely very fine and medium grained, well sorted and rounded, silty, siliceous with chlorite, mica and coaly carbonaceous material.
325' - 327'	2'	Coal, pure to silty and argillaceous (interpreted depth and thickness)
327' - 332'	5'	Siltstone, micaceous, light to medium gray, moderately hard, siliceous as above.
332' - 338'	6'	Sandstone as 207' - 325'.
338' - 377'	39'	Sandstone, white to light gray, moderately hard, fine to very coarse, commonly granular grained, poorly sorted, subrounded to round, silty, siliceous with chlorite, mica, carbonaceous material and finely disseminated pyrite. Possible fair to poor porosity. Abundant interbedded stringers of Siltstone, locally micaceous and carbonaceous, medium gray, moderately hard and brittle, siliceous with common fine coal laminae.
377' - 382'	5'	Siltstone, medium gray, moderately hard, siliceous with finely divided mica and carbonaceous material.
382' - 391'	9'	Sandstone, chloritic, white to light green-gray, moderately hard to friable, very fine to fine grained, well sorted and rounded, interstitially silty, siliceous and calcareous with abundant chlorite, mica, carbonaceous material and a brown iron mineral. Poor porosity.
391' - 403'	12'	Sandstone, white, moderately hard, fine to coarse grained, fair sorting, subrounded to round, silty, siliceous with chlorite, mica and coaly carbonaceous material.

403' - 427'	24'	Siltstone, light to medium gray, moderately hard, locally very finely sandy, siliceous with abundant finely divided carbonaceous material and mica. Fine coal laminae 419' - 427'.
427' - 465'	38'	<u>Equivalent Upper Banner Coal Horizon</u> - no coal present. Siltstone, argillaceous, medium gray, moderately hard and brittle, slightly fissile, siliceous as above.
465' - 515'	50'	Sandstone, white to light gray, moderately hard, very fine to medium grained, well sorted and rounded, interstitially very silty, siliceous and locally calcareous with abundant chlorite, mica and carbonaceous material. Common interbedded Siltstone, light to medium gray, moderately hard, locally very finely sandy, siliceous with mica and carbonaceous material. Poor porosity.
515' - 535'	20'	Siltstone as in 465'-515'
535' - 570'	35'	Sandstone, light gray, hard, very fine to silty grained well sorted and rounded, siliceous and calcareous with abundant mica, chlorite and carbonaceous material. Common interbedded Siltstone as above and abundant silty, coaly carbonaceous and micaceous laminae or partings. Poor to no apparent porosity.
570' - 610'	40'	Siltstone, light to medium gray, moderately hard and brittle, siliceous with abundant finely divided mica and carbonaceous material. Common coaly carbonaceous and micaceous laminae with interbedded Sandstone stringers as above.
610' - 667'	57'	Sandstone as 535' - 570'
667' - 675'	8'	Siltstone as 570' - 610'
675' - 682'	7'	Sandstone as 610' - 667'
682' - 723'	41'	Shale, silty, medium gray, hard, brittle, slightly fissile, siliceous with finely divided mica and carbonaceous material. One species of non-marine pelecypod at 700'-707'.
723' - 795'	72'	Sandstone, silty, white to light gray, hard, fine to very fine and silty grained, fairly well sorted and rounded, siliceous and slightly calcareous with finely divided mica, chlorite and carbonaceous material. Common laminae and partings of Siltstone, micaceous and coaly carbonaceous. Poor to no porosity.

795' - 805'	10'	No sample
805' - 817'	12'	Siltstone, light to medium gray, moderately hard and brittle, siliceous with abundant mica, coaly carbonaceous material and common pyrite. Estimated 1' Coal in this interval.
817' - 824'	7'	Siltstone, micaceous, medium gray, hard, brittle, very finely sandy, siliceous with abundant carbonaceous material, mica and common coal laminae.
824' - 875'	51'	Sandstone, white, hard, fine to very fine grained, well sorted and rounded, interstitially silty, siliceous with abundant carbonaceous material and mica. Good porosity. Common interbedded Siltstone fine stringers.
875' - 950'	75'	<u>McClure Sandstone Members</u> - Sandstone, white, moderately hard, fine to medium, commonly coarse and very coarse grained, moderate to poorly sorted, subrounded to round, interstitially slightly silty, siliceous and calcareous with rare chlorite. Possible fair to poor porosity. Interbedded Siltstone, medium gray, micaceous and coaly carbonaceous in the interval 900' - 920'.
950' - 965'	15'	Shale, silty, medium to dark gray, hard, brittle, moderately fissile, siliceous with abundant finely divided mica and carbonaceous material.
965' - 971'	6'	Siltstone, carbonaceous, argillaceous, dark gray to black, moderately hard and brittle, siliceous with abundant finely divided coaly carbonaceous material and mica. Common fragments of Coal.
971' - 983'	12'	Sandstone, silty, light gray, moderately hard, very fine to silty grained, well sorted and rounded, siliceous, with abundant carbonaceous material and mica, common pyrite and silty, micaceous, coal laminae. No apparent porosity.
983' - 1030'	47'	Sandstone, white to light gray, moderately hard, very fine to medium and rarely coarse grained, moderate sorting, subround to round, interstitially silty, siliceous, locally calcareous with chlorite, mica and carbonaceous material. Possible fair to poor porosity. Common laminae or partings of Siltstone, micaceous and coaly carbonaceous.

1030' - 1055'	25'	Siltstone, argillaceous, medium to dark gray, hard, siliceous with mica and carbonaceous material. Rare interbedded Sandstone stringers 1035' - 1045'.
1055' - 1083'	28'	No sample
1083' - 1166'	83'	Sandstone, white to light gray, moderately hard, fine to coarse, commonly very coarse grained, moderate to poorly sorted, subangular to round, interstitially silty, siliceous with abundant carbonaceous material, common chlorite and mica. Abundant silty micaceous and coaly carbonaceous laminae. Poor to no apparent porosity.
1166' - 1285'	119'	Sandstone, light gray, hard, very fine to silty grained, well sorted and rounded, interstitially siliceous and calcareous with abundant finely divided carbonaceous material. No porosity. Abundant interbedded laminae and partings of Siltstone, medium gray, micaceous and coaly carbonaceous in the interval 1166' - 1190'.
1285' - 1290'	5'	Sandstone, white, hard, fine to medium grained, well sorted and rounded, very silty, siliceous with common carbonaceous material.
1290' - 1341'	51'	Siltstone, medium gray, rarely brown and dark gray, carbonaceous, moderately hard, siliceous with abundant finely divided carbonaceous material and mica. Numerous interbedded Sandstone stringers throughout. Estimated 2' Coal bed in the interval 1337' - 1341', with abundant fine coal laminae.
1341' - 1390'	49'	Sandstone, white, moderately hard to friable, fine to medium, commonly coarse, rarely very coarse to granular grained, graded, poor to well sorted, subround to round, slightly silty, siliceous and locally calcareous with rare carbonaceous inclusions. Possible fair porosity.
1390' - 1409'	19'	Siltstone, medium to dark gray, moderately hard and brittle, siliceous with abundant finely divided mica, carbonaceous material and common pyrite.
1409' - 1440'	31'	Sandstone, white, moderately hard, fine to medium grained, moderate sorting, subround to round, silty, siliceous with abundant chlorite, common mica and carbonaceous material, rare pyrite. Minor interbedded Siltstone, as 1390' - 1409', throughout. Poor porosity.

1440' - 1442'	2'	Coal (interpreted depth and thickness)
<u>Lee Formation</u>		(1442' - 2213')
1442' - 1459'	17'	Sandstone, white to light gray, moderately hard, fine to medium grained, well sorted, subangular to round, interstitially silty, siliceous with abundant carbonaceous material, common mica, and chlorite. Poor porosity. Numerous partings and laminae of Siltstone, micaceous and coaly carbonaceous.
1459' - 1487'	28'	Sandstone as above, fine to medium, commonly coarse and very coarse grained, poorly sorted with common partings and laminae of Siltstone, micaceous and coaly carbonaceous.
1487' - 1544'	57'	Sandstone, white, moderately hard, fine to medium, abundantly coarse and very coarse, commonly granular grained, graded, moderate to poor sorting, subround, to round, interstitially slightly silty, siliceous with rare chlorite, mica and carbonaceous material. Possible fair porosity and conglomeratic?
1544' - 1552'	8'	Sandstone as above, fine to medium grained, well sorted.
1552' - 1572'	20'	Sandstone, white to light gray-brown, hard, fine to predominantly medium, commonly coarse and very coarse grained, moderate sorting, subround to round, silty, siliceous with abundant mica, chlorite and carbonaceous material. Minor interbedded Siltstone, medium to dark gray, moderately hard and brittle, siliceous with abundant finely divided micaceous and coaly carbonaceous partings.
1572' - 1582'	10'	Sandstone, white, moderately hard, fine to predominantly medium and coarse, commonly very coarse and granular, poorly sorted, subangular to round, interstitially slightly silty, siliceous with common carbonaceous material, mica and chlorite. Good to poor porosity. Possible fine coal laminae or partings throughout.
1582' - 1586'	4'	Siltstone, light to dark gray, moderately hard, siliceous with carbonaceous material and mica.
1586' - 1648'	62'	Sandstone, white, moderately hard, very fine to medium, commonly coarse grained, moderate to poorly sorted, subround to round, interstitially silty, siliceous, locally very slightly calcareous with abundant carbonaceous material, chlorite and mica. Fair to poor porosity. Locally abundant partings of Siltstone, micaceous and coaly carbonaceous.

1648' - 1679'	31'	Sandstone, white, moderately hard, very fine to medium and coarse, commonly very coarse grained, moderate to poorly sorted, subround to round, interstitially slightly silty, siliceous, locally calcareous, with common carbonaceous material, chlorite and mica. Fair to poor porosity.
1679' - 1687'	8'	Siltstone, medium to dark gray, moderately hard, very finely sandy, siliceous with abundant finely divided mica, carbonaceous material and coaly micaceous partings.
1687' - 1717'	30'	Sandstone, white, moderately hard, very fine to medium grained, moderate sorting, subround to round, slightly silty, siliceous and locally calcareous with carbonaceous material, chlorite and mica. Poor porosity.
1717' - 1764'	47'	Sandstone, white, moderately hard, fine to medium and coarse, commonly very coarse, rarely granular grained, graded, moderate to poorly sorted, subround to round, interstitially silty, siliceous with rare carbonaceous material. Fair to poor porosity, possible conglomeratic? Minor interbedded Siltstone, carbonaceous, dark gray, hard, brittle and siliceous with abundant mica and fine coal laminae in the interval 1732' - 1742'.
1764' - 1767'	3'	Coal (interpreted depth and thickness).
1767' - 1771'	4'	Shale, coaly carbonaceous, dark gray, hard and brittle. (interpreted depth and thickness).
1771' - 1774'	3'	Sandstone, conglomeratic, fine to granular grained, as above.
1774' - 1777'	3'	Coal (interpreted depth and thickness).
1777' - 1780'	3'	Shale, coaly carbonaceous, dark gray, hard and brittle. (interpreted depth and thickness).
1780' - 1813'	33'	Sandstone, white, fine to medium, rarely coarse grained, moderate to well sorted, subround to round, interstitially slightly silty, siliceous. Abundant fragments of coal (contamination?).
1813' - 1867'	54'	Sandstone, conglomeratic, white, moderately hard, fine to granular grained, moderate to poorly sorted, subround to round, interstitially slightly silty, siliceous and locally calcareous. Fair porosity.

1867' - 1874'	7'	No sample
1874' - 1907'	33'	Sandstone, white, moderately hard, fine to coarse, commonly very coarse, graded, poor to well sorted, subrounded to round, silty, siliceous and locally calcareous with rare carbonaceous material. Fair to poor porosity.
1907' - 1938'	31'	Siltstone, light to medium gray, moderately hard and brittle, locally very finely sandy, with abundant carbonaceous material, mica and coaly micaceous partings.
1938' - 1947'	9'	Siltstone, argillaceous, medium to dark gray, carbonaceous, moderately hard and brittle, slightly fissile, siliceous with abundant finely divided mica and carbonaceous material.
1947' - 1949'	2'	Coal (interpreted thickness).
1949' - 1952'	3'	Siltstone as 1938' - 1947' (interpreted depth and thickness).
1952' - 1954'	2'	Sandstone, white, hard, fine to medium grained, well sorted and rounded, interstitially siliceous with rare chlorite and carbonaceous material. Fair to poor porosity.
1954' - 1956'	2'	Coal (interpreted depth and thickness)
1956' - 1958'	2'	Siltstone as 1949' - 1952'
1958' - 1984'	26'	Sandstone, white, moderately hard, fine to coarse, commonly very coarse grained, fair to poorly sorted, subrounded to round, slightly silty, siliceous with rare carbonaceous material. Good to poor porosity.
1984' - 2003'	19'	Sandstone, white, moderately hard, fine to medium grained, well sorted, subangular to round, siliceous with common carbonaceous material and chlorite. Fair to poor porosity. Abundant interbedded partings and laminae of Siltstone.
2003' - 2021'	18'	Sandstone, white, very fine to coarse and commonly very coarse, poorly sorted, subangular to round, siliceous with rare carbonaceous material. Fair to poor porosity.
2021' - 2024'	3'	Siltstone, carbonaceous, dark gray to black, hard, brittle, siliceous, with abundant finely divided mica, carbonaceous material and fine coal laminae.

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2024' - 2064'	40'	Sandstone, white, moderately hard, very fine to medium and commonly coarse grained, graded, moderate to well sorted, subround to round, interstitially silty, siliceous with carbonaceous material. Fair to poor porosity.
2064' - 2095'	31'	Sandstone, white to light gray-brown, moderately hard, fine to very coarse grained, poorly sorted, subangular to round, locally interstitially very silty, siliceous, slightly calcareous with generally abundant carbonaceous material, mica and chlorite. Common silty micaceous and coaly carbonaceous partings in the interval 2064' - 2082'.
2095' - 2124'	29'	Sandstone, white, moderately hard, fine to medium, locally coarse grained, fair sorting, subround to round, interstitially very silty, siliceous with common carbonaceous material, chlorite and rare mica. Poor porosity.
2124' - 2170'	46'	Sandstone, white, moderately hard, very fine to medium, commonly coarse and rarely very coarse, moderate to poorly sorted, slightly silty, siliceous and locally calcareous with carbonaceous material, chlorite and mica. Poor porosity.
2170' - 2189'	19'	Sandstone, white, moderately hard, fine to coarse and commonly very coarse grained, poorly sorted, subround to round, siliceous, with rare carbonaceous material and chlorite. Fair to poor porosity.
2189' - 2198'	9'	Sandstone, conglomeratic, white, moderately hard, fine to granular and pebbly grained, poorly sorted, angular to round, interstitially slightly silty, siliceous with rare carbonaceous material and chlorite. Fair porosity.
2198' - 2201'	3'	Coal with interbedded carbonaceous siltstone.
2201' - 2213'	12'	Sandstone, conglomeratic as above.

MISSISSIPPIAN SYSTEMPennington Group (2213' - ?)Bluestone Formation (2213' - 2603')

2213' - 2229'	16'	Siltstone, light to medium gray, light brown, buff, green-gray and green, hard, brittle, siliceous and slightly calcareous with abundant finely divided carbonaceous material, mica and coal laminae or partings.
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- 2229' - 2238' 9' Sandstone, white to light gray-green, hard, very fine to medium grained, moderate sorting, angular to round, interstitially silty, siliceous and calcareous with very abundant chlorite, common mica and carbonaceous material. Poor to no apparent porosity. Fragments of Limestone, dolomitic, tan, very hard, microcrystalline, probably occurring as thin laminae.
- 2238' - 2251' 13' Siltstone, light gray and gray-green, rarely medium gray, hard, brittle, locally finely sandy, siliceous and calcareous with abundant carbonaceous material and chlorite. Common Limestone and fossil fragments as above.
- 2251' - 2261' 10' Sandstone, white, moderately hard, very fine to medium, commonly coarse grained, poorly sorted, subangular to round, interstitially very silty, siliceous and calcareous with common chlorite, carbonaceous material and silty coal laminae. Poor to no apparent porosity.
- 2261' - 2264' 3' Sandstone, silty, chloritic, green and gray-green, moderately hard, very fine to silty grained, well sorted and rounded, siliceous and calcareous with chlorite, mica and carbonaceous material. Poor to no porosity. Fragments of Limestone as above.
- 2264' - 2267' 3' Siltstone, chloritic, green and gray-green, moderately hard and brittle, locally very finely sandy, siliceous and calcareous with abundant finely divided chlorite, mica and carbonaceous material.
- 2267' - 2306' 39' Siltstone, light to medium gray, rarely gray-green, moderately hard and brittle, siliceous and slightly calcareous with common carbonaceous material. Common Sandstone laminae and partings throughout.
- 2306' - 2315' 9' Sandstone, chloritic, white to light gray-green and green, hard, fine to medium grained, well sorted and rounded, silty, siliceous and slightly calcareous with abundant chlorite, common mica and carbonaceous material. Fair to poor porosity. Abundant fragments of Limestone, dolomitic, silty, siliceous, impure, as above.
- 2315' - 2323' 8' Siltstone, light to medium gray and gray-green as 2267' - 2306'.
- 2323' - 2326' 3' Sandstone, white to light gray-green with abundant chlorite as 2306' - 2315'. Minor interbedded limestone, laminae, silty, siliceous, tan to gray-green as above.

2326' - 2332'	6'	Siltstone, light to medium gray and gray-green as 2315' - 2323'.
2332' - 2350'	18'	Sandstone, chloritic and micaceous, light gray-green, moderately hard, very fine to medium grained, moderately well sorted and rounded, interstitially very silty, siliceous and slightly calcareous with abundant carbonaceous material. Poor porosity. Minor interbedded stringers and laminae of Siltstone, light to medium gray, moderately hard and brittle, very finely sandy, siliceous and very slightly calcareous with mica and carbonaceous material. Common Limestone laminae as above.
2350' - 2376'	26'	Sandstone, white to light gray, light gray-green and gray-brown, hard, very fine to fine grained, well sorted and rounded, interstitially very silty, siliceous and slightly calcareous with abundant carbonaceous material, rare chlorite and mica. Poor to no porosity. Common Siltstone laminae and partings as above.
2376' - 2384'	8'	Siltstone, medium to dark gray, hard, very finely sandy, siliceous with abundant mica, carbonaceous material and silty micaceous coal laminae.
2384' - 2440'	56'	Sandstone, white to light gray, very fine to fine grained, well sorted and rounded, very silty, siliceous and slightly calcareous with silty micaceous and coaly carbonaceous partings. Poor porosity.
2440' - 2461'	21'	Siltstone, medium to dark gray, hard, brittle, locally very finely sandy, siliceous and slightly calcareous with abundant finely divided carbonaceous material and mica. Rare Sandstone laminae.
2461' - 2490'	29'	Siltstone, light to medium gray, hard, brittle, siliceous, slightly argillaceous with carbonaceous material and mica.
2490' - 2560'	70'	Siltstone, medium to dark gray, hard, brittle, rarely very finely sandy, siliceous, locally very slightly calcareous with abundant finely divided carbonaceous material and mica. Locally common Sandstone and silty micaceous coal laminae.
2560' - 2593'	33'	Siltstone, medium gray, moderately hard, brittle, slightly fissile and argillaceous, siliceous and calcareous with abundant finely divided carbonaceous material, mica and pyrite.
2593' - 2603'	10'	Siltstone, carbonaceous, dark gray, hard, brittle, very finely sandy, siliceous and calcareous with abundant mica, carbonaceous material and rare pyrite.

<u>Princeton Sandstone</u>		(2603' - 2768' +)
2603' - 2615'	12'	Sandstone, white to light gray, moderately hard, very fine to medium grained, well sorted and rounded, interstitially silty, siliceous and calcareous, with rare carbonaceous material, mica, chlorite and pyrite. Poor porosity. Common silty micaceous and coaly carbonaceous partings.
2615' - 2620'	5'	Siltstone, light to dark gray, hard, siliceous, slightly calcareous with abundant finely divided mica, carbonaceous material and silty micaceous coal laminae.
2620' - 2656'	36'	Interbedded Sandstone as 2603' - 2615' and Siltstone as 2615' - 2620'.
2656' - 2707'	51'	Sandstone, white, moderately hard, fine to medium, locally commonly coarse grained, moderately well sorted, subround to round, interstitially slightly silty, siliceous and calcareous with common carbonaceous material and rare pyrite. Fair to poor porosity.
2707' - 2724'	17'	Sandstone as above, very fine to medium and commonly coarse grained, poorly sorted
2724' - 2738'	14'	Sandstone as above, very fine to very coarse grained, poorly sorted.
2738' - 2768'	30'	Sandstone as above, very fine to medium and commonly coarse grained, poor to moderate sorting.
2768' - 3229'	461'	No sample
<u>Hinton Formation</u>		(? -?)
<u>Bluefield Formation</u>		(? - 3402')
3229' - 3247'	18'	Siltstone, calcareous, medium to dark gray, hard, brittle, and siliceous with abundant finely divided coaly carbonaceous material, mica and rare pyrite. Rare intercolated laminae and partings of Sandstone, very fine grained and calcareous. Common silty micaceous and coaly carbonaceous laminae. Rare fossil fragments.
3247' - 3259'	12'	Siltstone, argillaceous, light to dark gray, hard, brittle, slightly fissile, siliceous and calcareous with abundant carbonaceous material, mica and rare pyrite. Common fragments of Limestone, dolomitic, silty, brown and gray-brown.

3259' - 3269'	10'	Shale, medium gray, hard, brittle, slightly fissile, siliceous and very slightly calcareous with mica and carbonaceous material.
3269' - 3277'	8'	Limestone, dolomitic, silty, siliceous, and argillaceous, impure, commonly oolitic and fossiliferous fragmental, light to medium and dark gray-brown, hard, brittle, microcrystalline with abundant coral fragments, fossil debris and rare pyrite.
3277' - 3285'	8'	Siltstone, argillaceous as 3247' - 3259'.
3285' - 3322'	37'	Limestone, dolomitic, silty, siliceous and argillaceous, impure, light to dark gray-brown and brown, hard and brittle, locally very finely sandy, rarely oolitic and fossiliferous fragmental with common pyrite. Common interbedded Siltstone stringers. (x-ray analysis of the Limestone in this interval)
3322' - 3350'	28'	Siltstone, calcareous, light to medium gray, moderately hard and brittle, very finely sandy, siliceous with abundant finely divided carbonaceous material, common pyrite and mica. Common interbedded lenses of Limestone, dolomitic, silty, impure and Sandstone, very fine grained. Common coral and fossil fragments.
3350' - 3359'	9'	No sample.
3359' - 3368'	9'	Siltstone, argillaceous, medium gray, moderately hard and brittle, locally very finely sandy, siliceous and slightly calcareous with carbonaceous material, pyrite and mica.
3368' - 3381'	13'	No sample.
3381' - 3386'	5'	Siltstone, argillaceous as 3359' - 3368'
3386' - 3402'	16'	Siltstone, calcareous as 3322' - 3350' with abundant fossil fragments.
<u>Greenbrier Limestone</u>		(3402' - 3945')
3402' - 3424'	22'	Limestone, dolomitic, fossiliferous fragmental, white, light to dark gray-brown and tan, hard, brittle, microcrystalline, silty and locally very finely sandy, siliceous, impure, with abundant calcite. Minor interbedded Siltstone, argillaceous as 3359' - 3368' throughout.
3424' - 3432'	8'	Sandstone, calcareous, white to light brown-gray, moderately hard, very fine to fine grained, well sorted and rounded, interstitially silty, siliceous and calcareous with common chlorite and rare carbonaceous material. No porosity.

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3432' - 3455'	23'	Limestone, oolitic and locally fossiliferous fragmental, white, tan, light to dark gray and gray-brown, hard, brittle, microcrystalline, rarely silty, siliceous with abundant calcite and rare pyrite. Minor interbedded Siltstone stringers throughout.
3455' - 3473'	18'	Siltstone, light to dark gray, gray-brown and brown, moderately hard and brittle, slightly fissile, siliceous and slightly calcareous with abundant finely divided mica, common pyrite and rare carbonaceous material.
3473' - 3550'	78'	Interbedded Limestone, dolomitic, silty, siliceous and argillaceous, impure, commonly fossiliferous fragmental, white to light and dark gray, gray-brown, brown and tan, hard, brittle and microcrystalline, locally silty, siliceous with rare oolites and common calcite. Siltstone, light to dark gray, moderately hard and brittle, locally very finely sandy, siliceous and slightly calcareous with abundant mica, carbonaceous material and fossil fragments. Abundant to common chert, amber and brown, in the intervals 3486' - 3509' and 3540' - 3550.
3550' - 3555'	5'	Limestone, light gray-brown to brown and tan, hard, brittle, microcrystalline, locally very finely sandy, siliceous, commonly oolitic and fossiliferous fragmental with rare pyrite. Common chert fragments.
3555' - 3565'	10'	Limestone, oolitic and fossiliferous fragmental, white to light gray-brown, brown and tan, hard, brittle, microcrystalline, locally silty, siliceous with common pyrite and calcite.
3565' - 3575'	10'	Limestone, white to tan, hard, microcrystalline, rarely oolitic.
3575' - 3635'	60'	Limestone, oolitic and fossiliferous fragmental, white to tan and buff, hard, brittle, microcrystalline, locally finely silty, siliceous.
3635' - 3648'	13'	Limestone, silty, impure, white to tan, light and dark gray-brown, hard, brittle, microcrystalline, locally very finely sandy, siliceous with common oolites and fossil fragments.
3648' - 3657'	9'	No sample
3657' - 3683'	26'	Limestone, silty, impure as 3635' - 3648'

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3683' - 3733'	50'	Limestone, abundantly oolitic and fossiliferous fragmental, white to light tan and buff, hard, brittle and microcrystalline, with common pyrite.
3733' - 3779'	46'	Limestone, white to buff, hard, brittle and microcrystalline.
3779' - 3803'	24'	Limestone, generally oolitic, hard, brittle and microcrystalline.
3803' - 3806'	3'	Siltstone, pale green, moderately hard, brittle, siliceous and slightly calcareous.
3806' - 3827'	21'	Limestone, oolitic and fossiliferous fragmental, white to buff, hard, brittle, microcrystalline, locally silty, siliceous, with rare pyrite.
3827' - 3839'	12'	Limestone, white to buff, commonly oolitic, hard, brittle and microcrystalline, locally silty, siliceous with rare pyrite.
3839' - 3867'	28'	Limestone, oolitic, white to buff, hard, brittle and microcrystalline.
3867' - 3874'	7'	Dolomite, white to buff, moderately hard, brittle, coarsely crystalline, sugary texture, finely silty, siliceous and commonly oolitic.
3874' - 3907'	33'	Limestone, buff to tan, light gray-brown and brown, hard, brittle and microcrystalline with abundant finely disseminated pyrite. Locally common to very abundant chert, white, blue-white, blue, brown, red and tan in the interval 3879' - 3907.
3907' - 3945'	38'	Limestone, buff, tan, light gray and gray-brown, to light and dark brown, very hard, brittle and microcrystalline, slightly silty, siliceous and impure, with abundant pyrite. Common chert throughout.
<u>MacCrady Shale</u>		(3945' - 3979')
3945' - 3950'	5'	Siltstone, calcareous, light to medium gray and gray-brown, moderately hard and brittle, very finely sandy, siliceous.
3950' - 3969'	19'	Siltstone, light to medium gray, commonly gray-brown, brown and red-brown, ferruginous, hard, brittle, very finely sandy, siliceous and calcareous with finely divided carbonaceous material.
3969' - 3979'	10'	Siltstone, light to medium gray, rarely gray-brown, moderately hard and brittle, very finely sandy, siliceous with abundant finely divided carbonaceous material and common mica.

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<u>Price Formation</u>		(3979' - 4006' +)
3979' - 3987'	8'	Sandstone, silty, light gray, moderately hard, very fine to silty grained, well sorted and rounded, siliceous, with abundant finely divided carbonaceous material. Common silty micaceous and carbonaceous partings. Poor porosity.
3987' - 4005'	18'	Siltstone, light to medium gray, gray-brown and brown, moderately hard and brittle, very finely sandy, siliceous with abundant carbonaceous material and mica. Minor interbedded Sandstone stringers and laminae as above.
4005' - 4006'	1'	No sample
		TOTAL DEPTH 4006'

SUMMARY

Pennsylvanian System (0 - 2213')	Pottsville Group (0' - 2213')	Wise Formation (0'-152')	Blair Coal (53' - 55')
			Equivalent Lyons Coal Horizon (est. 105')
			Dorchester Coal (est. 150'-152')
		Gladeville Sandstone (152' - 219')	
		Norton Formation (219' - 1442')	Norton Coal (219'-221')
			Equivalent Upper Bannes Coal Horizon (427'-465')
			McClure Sandstone Members (875'-950')
		Lee Formation (1442'-2213')	
		Bluestone Formation (2213'-2603')	
	Pennington Group (2213' ± ?)	Princeton Sandstone (2603'-3768'+)	
Mississippian System (2213' -4006'+)		Hinton Formation (? - ?)	

Summary (continued)

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Mississippian
System
(2213' - 4006'+)
(continued)

Bluefield Formation
(? - 3402')

Greenbrier Limestone
(3402' - 3945)

MacCrady Shale
(3945' - 3979')

Price Formation
(3979' - 4006')

GEOLOGIC SUMMARY

Pennsylvanian System

Wise Formation	in bottom	surface 152
Gladeville Sandstone	top bottom	152 219
Norton Formation	top bottom	219 1442
Lee Formation	top bottom	1442 2213

Mississippian System

Bluestone Formation	top bottom	2213 2603
Princeton Sandstone	top bottom	2603 (?)
Hinton Formation	top bottom	(?) (?)
Stony Gap Sandstone	top bottom	(?) (?)
Bluefield Formation	top bottom	(?) 3402
Greenbrier Limestone	top bottom	3402 3945
Maccrady Formation	top in	3945 4005 (deepest sample)

Correlations by: Keith Robinson

September 1963