

VDMR Well No. 281

Operator: Clinchfield Coal Company  
Farm: E. A. Smith  
Well No.: 208  
Location: Dickenson County  
2.68 mi. S. of 37°10'  
1.06 mi. W. of 82°25'  
Elevation: 1459.4 Ground  
Total Depth: 5223'  
Spudded: 3/3/58  
Completed: 9/10/58  
Result: Gas Well

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

GEOLOGIC LOG

<u>Depth (feet)</u>	<u>Interval</u>	<u>Description</u>
<u>PENNSYLVANIAN SYSTEM (0-1620)</u>		
<u>POTTSVILLE GROUP (0-1620)</u>		
<u>Norton formation (0-794)</u>		
0 - 91	91	No samples
91		<u>Kennedy Coal Horizon</u> (No coal observed)
91 - 105	14	Siltstone, light to medium gray, moderately hard, tough, with: common mica.
105 - 117	12	Siltstone, as 91-105, with stringers of sandstone, clear to greenish-gray, moderately hard, friable, medium-grained, medium sorted, with: slightly calcareous. Nonporous.
117 - 135	18	Interbedded; Coal, black, hard, with; sandstone, light gray to green, medium-grained, well sorted, subangular to subrounded, with: common mica. Nonporous. with; siltstone, medium gray, hard, tough, with: abundant mica.
135 - 162	27	Sandstone, clear to white, with green, very fine- to medium-grained, poorly sorted, slightly calcareous, with: common mica, common pyrite. Nonporous to slightly porous.
162 - 168	6	Siltstone, medium to dark gray, moderately hard, tough, calcareous, with: common mica.
168 - 173	5	Siltstone, as above, interbedded with; siltstone, red and green, soft, crumbly, with: common mica and common pyrite, with; shale, medium gray, soft, flaky, fair fissility.

447 - 460	13		Sandstone, clear to orange, moderately soft, friable, fine- to medium-grained, medium-sorted, slightly calcareous, with: common mica, and common coaly streaks and partings.
460 - 473	13		No samples.
473 - 480	7		Siltstone, light to medium gray, hard, tough, locally finely sandy, with: common mica, and minor stringers of sandstone, as in 447-460.
480 - 513	33		Sandstone, grayish-white, moderately hard, friable, medium-to coarse-grained, medium sorted, interstitially silty, calcareous, with: common mica.
513 - 530	17		Interbedded; sandstone, as in 480-513, with; siltstone, light to medium gray, moderately hard, tough, with: abundant mica.
530			<u>Jawbone Coal Horizon</u>
530 - 567	37		Siltstone, light to medium gray, moderately hard, tough, slightly calcareous, with: abundant mica.
567 - 583	16		No samples.
583 - 612	29	*	Sandstone, colorless to white, moderately hard, friable, medium-grained, well sorted, calcareous, with: rare mica, and minor stringers of siltstone, dark gray, hard, tough, locally fissile, calcareous, with: common mica, and common carbonateous laminae and partings. Nonporous to slightly porous.
612 - 665	53	*	Sandstone, clear to white and light gray, moderately hard, tough, fine- to medium-grained, medium sorted, subangular, calcareous, with: rare mica. Slightly porous.
665 - 702	37	*	Sandstone, clear, hard, tough, fine-grained, well sorted, subangular to subrounded, calcareous, with: common mica. Nonporous to slightly porous.
702 - 716	14	*	Sandstone, clear to yellowish-white, moderately hard, medium-grained, medium sorted, subrounded, calcareous, with: rare mica. Non porous.
716 - 720	4	*	Sandstone, colorless, moderately hard, friable, medium-grained, well sorted, subangular to subrounded, slightly calcareous. Nonporous.

962-984	22	CK	Sandstone, clear to white, moderately hard, tough, medium-to coarse-grained, medium sorted, siliceous, with: common mica. Nonporous to slightly porous.
984-1050	66	CK	Sandstone, clear, moderately soft, friable, fine-to medium-grained, medium sorted, subrounded to subangular, interstitially silty, calcareous, with: common mica. Slightly porous.
1050-1113	63	CK	Sandstone, as in 984-1050, with minor stringers, of siltstone, carbonaceous, black, very hard, tough, locally fissile, with: common mica.
1113-1138	25		Sandstone, as in 984-1050.
1138-1165	27		Siltstone, dark gray to brown and black, moderately hard, tough, locally fissile, with: abundant coaly carbonaceous laminae and partings, and common pyrite.
1165-1200	35		Interbedded; sandstone, clear with red and green, moderately hard, friable medium-to coarse-grained, medium sorted, interstitially silty, calcareous, with: rare mica. Nonporous. With; siltstone, light gray to black, moderately hard, tough, locally finely sandy, with: common mica.
1200-1212	12		Siltstone, dark gray, moderately hard, tough, locally finely sandy.
1212-1255	43		Interbedded; siltstone, coaly carbonaceous, dark gray to black, locally poorly fissile, with; siltstone, dark gray, hard, tough, locally finely sandy, with: common mica, with; coal black, and dark gray, hard, in part argillaceous and impure.
1255-1295	40		Siltstone, medium gray, moderately hard, tough, locally poorly fissile, with: common mica.
1295-1323	28		Interbedded; siltstone, as in 1255-1295, with; sandstone, white to tan, moderately soft, friable, fine-grained, well sorted, subrounded to rounded, locally calcareous, with: common mica. Nonporous to slightly porous.
1323-1345	22		Shale, black, hard, tough, good fissility, with: common mica, and minor stringers of soft, red, siltstone.
1345-1435	90		Sandstone, white to buff, moderately soft, friable, medium-grained, medium sorted, interstitially silty, calcareous, with: common mica. Nonporous to slightly porous.

1435-1490	55	Interbedded; sandstone, as in 1345-1435, with; siltstone, dark gray, hard, tough, locally poorly fissile, with: rare mica.
1490-1520	30	Sandstone, clear to white, moderately hard, fine-grained, well sorted, subangular to subrounded, slightly calcareous, with: common mica. Slightly porous to porous.
1520-1551	31	Sandstone, clear to white, light brown, moderately soft, friable, medium-grained, well sorted, subrounded to rounded, interstitially silty, calcareous, with: abundant mica. Nonporous.
1551-1620	69	* Sandstone, conglomeratic, fine to very coarse-grained, with abundant granule- and pebble-sized, clear to white, milky white, and smoky gray, moderately hard, friable, siliceous, locally calcareous. Nonporous.

MISSISSIPPIAN SYSTEM (1620'-3788')

PENNINGTON GROUP (1620'-2701')

Bluestone formation (1620'-2079')

1620-1650	30	Siltstone, <u>green</u> , hard, tough, locally poorly fissile, with: abundant round chert nodules.
1650-1663	13	Siltstone, <u>red</u> with <u>green</u> , moderately soft, crumbly, locally fissile, locally calcareous, with: abundant chert nodules.
1663-1687	24	Siltstone, variegated, green, red, buff, and light to medium gray, moderately soft, flaky, locally fissile, locally calcareous, with: common mica.
1687-1721	34	Siltstone, green, soft, crumbly, locally poorly fissile, calcareous, with: rare mica.
1721-1731	10	Siltstone, variegated, red, green, light gray, moderately soft, calcareous, with: common mica.
1731-1750	19	Siltstone, as above, with buff-colored siltstone.
1750-1775	25	Interbedded; sandstone, light green, moderately hard, tough, fine-to medium-grained, medium sorted, siliceous, with: rare mica, with; siltstone, variegated, red, green, light to dark gray, hard, tough, calcareous, with: common mica. Nonporous to slightly porous.

1775-1786	11	No samples
1786-1797	11	Sandstone, clear to white, moderately soft, friable, fine-to medium-grained, medium sorted, calcareous, with; minor stringers of siltstone, dark gray, very hard, tough, locally poorly fissile, with: rare mica.
1797-1842	45	Sandstone, clear, moderately soft, friable, fine-grained, medium sorted, subangular to subrounded, interstitially silty, calcareous, with: common mica. Slightly porous.
1842-1865	23	Siltstone, dark gray, very hard, tough, locally finely sandy, siliceous, with: common mica.
1865-1880	15	Siltstone, as in 1842-1865, with: stringers of sandstone, light green, moderately hard, tough, fine-grained, medium sorted, subangular to subrounded, interstitially silty, siliceous, with: common mica. Nonporous to slightly porous.
1880-1911	31	Siltstone, dark gray, hard, tough, locally finely sandy, siliceous, with: rare mica.
1911-2007	96	No samples.
2007-2023	16	Siltstone, dark green, maroon drab, and black, soft, flaky, locally poorly fissile, siliceous, with: rare mica.
2023-2062	29	Siltstone, dark gray to black, locally poorly fissile, siliceous, with: common coaly carbonaceous material, common mica, and common pyrite.
2062-2079	17	Siltstone, as in 2023-2062, with stringers of sandstone, white to light brown, moderately soft, friable, fine-grained, well sorted, subangular to subrounded, interstitially silty, calcareous, with: rare mica. Nonporous.

PRINCETON SANDSTONE (2079'-2245')

2079-2105	26	Sandstone, white to pale green, fine-grained, medium sorted, subrounded to rounded, interstitially silty, slightly calcareous, with: common mica, and minor stringers of siltstone, dark gray, hard, tough, locally finely sandy, siliceous. Nonporous.
-----------	----	---

2105-2117	12	Sandstone, clear moderately soft, friable, medium-grained, well sorted, subrounded, calcareous, with: rare mica. Nonporous.
2117-2149	32	Sandstone, as in 2105-2117, with minor stringers of siltstone, carbonaceous, black, moderately hard, locally poorly fissile, with: common mica.
2149-2166	17	Sandstone, clear to white, moderately hard, friable, medium- to coarse-grained, medium sorted, subangular, interstitially silty, slightly calcareous. Nonporous.
2166-2182	16	Sandstone, clear to white, moderately hard, friable, medium-grained, well sorted, subangular to subrounded, calcareous. Nonporous.
2182-2200	18	Sandstone, as in 2166-2182, with stringers of siltstone, dark gray, hard, tough, siliceous, and with rare very coarse-grained milky white quartz.
2200-2231	31	Sandstone, as in 2166-2182.
2231-2245	14	Sandstone, clear, medium grained, with rare very coarse-grained, medium sorted, subangular, interstitially silty, slightly calcareous, with: rare mica. Nonporous to slightly porous.
<u>Hinton formation (2245'-2701')</u>		
2245-2255	10	Siltstone, light to dark green, light to medium gray, hard, tough, calcareous, with: rare mica.
2255-2290	30	Siltstone, red and green, moderately hard, tough, locally finely sandy, calcareous.
2290-2300	10	Sandstone, pale green, moderately soft, friable, medium-grained, medium sorted, subangular, silicious, with: rare mica. Slightly porous.
2300-2362	62	Siltstone, medium gray, moderately soft, flaky, locally poorly fissile, siliceous, with: rare mica, and minor stringers of sandstone, as in 2290-2300.
2362-2374	12	Siltstone, green, light gray, moderately hard, tough, locally finely sandy, siliceous, locally calcareous.

2374-2400	26	Sandstone, light gray to green, moderately soft, friable, fine-grained, medium sorted, interstitially silty, calcareous, with: common pyrite, and abundant mica. Nonporous.
2400-2415	15	Sandstone, clear, moderately soft, friable, fine-grained, well sorted, subrounded, calcareous, with: rare pyrite and common mica. Nonporous to slightly porous.
2415-2418	3	Siltstone, greenish-gray, moderately hard, tough, locally poorly fissile.
2418-2436	18	Sandstone, as in 2400-2415
2436-2437	1	Coal (Interpreted depth and thickness)
2437-2460	23	Sandstone, as in 2400-2415.
2460-2484	24	Siltstone, light to medium gray, hard, tough, siliceous, with: common pyrite, and rare mica.
2484-2487	3	Sandstone, white, moderately soft, friable fine-grained, well sorted, calcareous, with: common pyrite. Nonporous to slightly porous.
2487-2506	19	Siltstone, as in 2460-2484
2506-2509	3	Siltstone, as in 2460-2484, with stringers of shale, carbonaceous, black, good fissility.
2509-2510	1	Coal (Interpreted depth and thickness)
2510-2516	6	Siltstone, with shale stringers, as in 2506-2509.
2516-2527	11	Siltstone, light to dark gray, moderately hard, tough, siliceous, with: rare pyrite, and rare mica.
2527-2530	3	Shale, carbonaceous, black, moderately soft, flaky, good fissility with: rare mica, and common coaly laminae and partings.
2530-2535	5	Siltstone, as in 2516-2527.

Stoney Gap Sandstone Member of the Hinton (2535'-2701')

2535-2539	4	Sandstone, light gray, moderately hard, friable, fine-grained, medium sorted, interstitially silty, siliceous, with: common mica. Slightly porous.
-----------	---	--

2539-2570	31	Interbedded; sandstone, as in 2535-2539, with; siltstone, medium gray, moderately hard, tough, locally finely sandy, siliceous, with: common pyrite.
2570-2600	30	Sandstone, clear, moderately soft, friable, medium-grained, well sorted, calcareous, with: common mica. Slightly porous.
2600-2602	2	Siltstone, light to dark gray, moderately hard, tough, siliceous.
2602-2619	17	Sandstone, as in 2570-2600.
2619-2638	19	Siltstone, grayish-brown, moderately hard, tough, locally finely sandy, siliceous.
2638-2652	14	Siltstone, variegated, green, red, buff, moderately hard, flaky, siliceous, with: rare mica.
2652-2660	8	Sandstone, clear to light green, moderately hard, friable, fine-to medium-grained, medium sorted, interstitially silty, siliceous, with: common mica. Nonporous.
2660-2664	4	Sandstone, clear to white, fine-grained, well sorted, subangular, siliceous, locally calcareous, with: rare mica-Nonporous.
2664-2680	16	Siltstone, grayish-green, hard, tough, locally finely sandy, siliceous, with: common mica, and common pyrite.
2680-2701	21	Sandstone, clear, moderately hard, friable, medium-grained, medium sorted, subangular to subrounded, calcareous, with: common mica. Nonporous.
<u>Bluefield formation (2701'-3050')</u>		
2701-2706	5	Siltstone, dark gray, hard, tough, locally poorly fissile with: common mica.
2706-2735	29	Siltstone, medium gray, hard, tough, locally poorly fissile, with: rare mica.
2735-2766	31	Siltstone, dark gray, very hard, tough, locally finely sandy, calcareous, with: rare mica.
2766-2770	4	Sandstone, light gray, moderately soft, friable, fine-grained, well sorted, interstitially silty, calcareous. Nonporous.
2770-2781	11	Siltstone, as in 2735-2766.



2781-2790	9	Interbedded; siltstone, variegated, red, light green, buff, moderately hard, tough, locally poorly fissile, with; sandstone, white, moderately hard, friable, medium-grained, well sorted, calcareous, with: rare mica. Nonporous to slightly porous.
2790-2860	70	Siltstone, dark gray, very hard, tough, locally poorly fissile, calcareous, with: rare mica, and common coaly carbonaceous lamanae and partings.
2860-2923	63	Siltstone, dark gray, moderately soft, flaky, locally poorly fissile, calcareous, with: rare mica, rare fossil fragments, and minor stringers of limestone, dolomitic, hard, light gray.
2923-2932	9	Limestone, light brown, silty, microcrystalline, fine-grained, fossiliferous, with: common chert.
2932-2981	49	Siltstone, dark gray, moderately soft, flaky, calcareous, with: rare pyrite, and common fossils (brachiopods, crinoids, and cephalopod ?)
2981-3008	27	Siltstone, as 2932-2981, with: common chert.
3008-3016	8	Siltstone, as 2932-2981, with minor stringers of limestone.
3016-3050	34	Siltstone, dark gray, moderately soft, flaky, calcareous, with: rare pyrite, and rare fossil fragments.

Greenbrier limestone (3050'-3422')

3050-3200	150	Limestone, light gray to brown, locally oolitic fossiliferous, hard, fine-grained, microcrystalline, with: rare chert.
3200-3227	27	Limestone, dolomitic, buff to light brown, oolitic, fine-grained, microcrystalline, hard, fossiliferous, with: rare chert.
3227-3263	36	Limestone, silty, buff, light greenish-gray, light brown, oolitic, fossiliferous, moderately hard, very fine-grained.
3263-3322	55	Limestone, silty, dolomitic, buff to light brown, oolitic, fossiliferous, moderately soft, fine-grained, microcrystalline.
3322-3355	33	Limestone, buff to light brown, dark brown, rare fossils, hard, tough, with: rare dolomite.

VDMR Well No.281

3355-3365 10 Limestone, as in 3322-3355, with: oolitic.  
 3365-3422 57 Limestone, as in 3322-3355, with: rare chert.

Maccrady formation (3422'-3520')

3422-3466 44 Siltstone, red, grayish-brown, hard, tough, locally poorly fissile, locally calcareous, with: common mica.  
 3466-3520 54 Siltstone, variegated, red, green, medium gray to brown, very hard, tough, locally poorly fissile, locally slightly calcareous.

Price Siltstone (sandstone) (3520-3788')

3520-3583 63 Siltstone, light green, very hard, locally finely sandy, slightly calcareous, with: rare mica.  
 3583-3635 52 Siltstone, light green, white to buff, light gray, hard, tough, locally finely sandy, calcareous, with: common mica.  
 3635-3735 100 Siltstone, medium gray, green, moderately hard, tough, locally poorly fissile, locally slightly calcareous, with: common mica.  
 3735-3788 53 Siltstone, variegated, dark gray-red, light green, very hard, tough, locally poorly fissile, with: rare pyrite, common mica.

Big Stone Gap Shale (3788'-4107')

3788-3894 106 Interbedded; Siltstone, medium to dark gray, hard, tough, locally finely sandy, slightly calcareous, with: common carbonaceous lamanae, with: shale medium to dark gray, moderately soft, flaky, good fissility, locally silty, argillaceous, with: rare pyrite.  
 3894-3933 40 Interbedded; shale, silty, dark gray to black, hard, tough, fair fissility, argillaceous, with: common carbonaceous lamanae, common pyrite, and common chert nodules with: siltstone, light brown, moderately soft, flaky, siliceous, with: coaly carbonaceous lamanae and partings.  
 3933-3958 25 Shale, as in 3894-3933.  
 3958-4010 52 Interbedded shale and siltstone, as in 3894-3933.  
 4010-4052 42 Siltstone, carbonaceous, black, moderately hard, tough, fair localy fissility, siliceous, with: rare pyrite, rare mica, and common coaly lamanae and partings.

4052-4062 10 No samples.

4062-4107 45 Siltstone, as in 4010-4052.

Devonian Shales and Siltstones (4107'-T.D.)

4107-4147 40 Siltstone, light to medium gray, hard, tough, rare local fissility, siliceous, with: rare mica, and common pyrite.

4147-4234 87 Siltstone, light to medium gray, very hard, tough, siliceous, with: common mica, and rare pyrite.

4234-4466 232 Interbedded; siltstone, light gray to black, moderately hard, tough, locally poorly fissile, siliceous, with: rare mica, and rare pyrite, with; shale, dark gray, moderately soft, flaky, good fissility, argillaceous, with: common mica, and abundant coaly carbonaceous material.

4466-4658 192 Siltstone, medium gray to black, very hard, tough, locally poorly fissile, with: common to abundant mica, and rare pyrite nodules.

4658-4705 47 Shale, silty, carbonaceous, black, hard, tough, fair fissility, with: common mica, common pyrite, and abundant coaly carbonaceous material.

4705-4740 35 Interbedded; shale, as in 4658-4705, with; siltstone, light brownish-gray to dark gray, hard, tough, locally finely sandy, siliceous.

4740-4768 28 Shale, as in 4658-4705.

4768-4786 18 No samples.

4786-4816 30 Shale, carbonaceous, silty, black, hard, tough, fair fissility, with: common mica, common pyrite, and common coaly carbonaceous material.

4816-4879 63 Shale, silty, light gray to black, moderately soft, good fissility, argillaceous, with: abundant pyrite, rare mica, and rare coaly carbonaceous partings and laminae.

4879-4898 19 No samples.

4898-4995 97 Shale, as in 4816-4879.

VDMR Well No. 281

4995-5030	35	Shale, carbonaceous, dark gray to black, fair fissility, with: abundant impure coal lamanae throughout, abundant pyrite, and rare mica.
5030-5048	18	Siltstone, light to medium gray, moderately soft, locally finely sandy, siliceous, with: common pyrite, common mica, and minor stringers of shale, carbonaceous, black soft, flaky, good fissility, with: common pyrite.
5048-5220	172	Shale, dark gray to black locally carbonaceous, moderately hard, tough, locally silty, with: common pyrite, and rare impure coal.
5220-5223	3	Limestone, light gray, oolitic, hard, fine-grained, microcrystalline, fossil fragmental.
T. D.	5223'	

SUMMARY

Pennsylvanian  
System  
(0'-1620')

Pottsville  
Group  
(0-1620')

Pennington  
Group  
(1620'-2701')

Mississippian  
System  
(1620'-3788')

Devonian System  
(3788'- T. D.)

Norton formation  
(0-794)

Lee formation  
(794-1620)

Bluestone formation  
(1620'-2079')

Princeton Sandstone  
(2079'-2245')

Hinton formation  
(2245'-2701)

Bluefield formation  
(2701'-3050')

Greenbriar Limestone  
(3050'-3422')

Maccrady formation  
(3422'-3520')

Price Siltstone (Sandstone)  
(3520'-3788')

Big Stone Gap Shale  
(3788'-4107')

Devonian Shales and Siltstones  
(4107'- T. D.)

Kennedy Coal Horizon  
(90')  
Raven Coal Horizon  
(447')  
Jawbone Coal Horizon  
(530')

Stony Gap Sandstone  
Member (2535'-2701')

## GEOLOGIC SUMMARY

## Pennsylvanian System

Norton Formation	in	91
	bottom	612
Lee Formation	top	612
	bottom	1620

## Mississippian System

Bluestone Formation	top	1620
	bottom	2079
Princeton Sandstone	top	2079
	bottom	2245
Hinton Formation	top	2245
	bottom	2701
Stony Gap Sandstone	top	2535
	bottom	2701
Bluefield Formation	top	2701
	bottom	2923
Greenbrier Limestone	top	2923
	bottom	3422
Maccrady-Price Formations	top	3422
	bottom	3788

## Mississippian-Devonian Systems

Big Stone Gap Shale	top	3788
	bottom	4107

## Devonian - Pre-Devonian Systems

Devonian - Pre-Devonian undivided	top	4107
	(sampled depth	5223)

Correlations by: Keith Robinson

September 1963

Operator: Clinchfield Coal Company

Farm: E. A. Smith

Well No.: 208

Index No.: 57

Location: Dickenson County  
14,150' S of 37° 10'  
5,700' W of 82° 25'

Elevation: 1459.4'

Remarks: Elevation and location of well site with reference to surface coals along Cranesnest River indicate well is located below the Lower Banner coal, and above the Kennedy coal. Correlations by Marshall Miller, 1970-74, VDMR.

<u>Formation</u>	<u>Top</u>	<u>Bottom</u>	<u>Thickness</u>
<b>Pennsylvanian System</b>			
Post Lee Formation "in at surface"		583	583'
Kennedy coal 117-120'			
Aily coal 204-206'			
Raven coal 298-302'			
Jawbone coal 358-363'			
Tiller coal 447-448'			
Lee Formation	583	1620	1037'
Middle Member			
583-1140			
quartzose sand 583-738			155'
quartzose sand 984-1140			156'
War Creek coal 1212-1214			
Lower Member			
1373-1620			
quartzose sand 1373-1440			67'
quartzose sand 1490-1620			130'
total quartzose sand			508'
Pocahontas Formation	"absent"		
<b>Mississippian System</b>			
Bluestone Formation	1620	2079	459'
Pride Shale	1842	2079	237'
Princeton Interval	2079	2245	166'
Little Stone Gap Member	2245	2290	45'
Stony Gap Sandstone	2570	2701	131'
Greenbrier Formation	3050	3422	372'
MacCrady	3422		

99

Dickenson

T.	R.

E A Smith #208

Index No 57 COMPANY

NO.

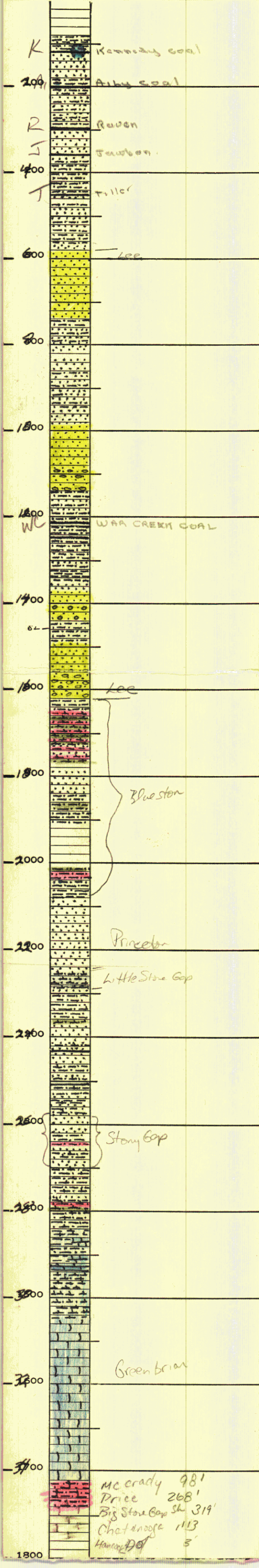
COMMENCED

COMPLETED

ELEVATION  
1459.4

REMARKS Well spudded  
below lower  
Banner coal

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



Mc Crady 98'  
 Price 268'  
 Big Stone Gap sh 319'  
 Chattanooga 113'  
 Hancock 3'