

Operator: New York Mining and Manufacturing Co.

Farm: Graham

Well No. : 1

Location: Wise County

12,850' north of 36°55'

1,550' west of 82°40'

Elevation: 2136'

Total Depth: 6057'

Remarks: Samples examined by Warren Souder, VDMR, 1965, (0-6057') and Ralph Miller, USGS, 1969, (0-783'). Due to the importance of the stratigraphy and location of this well, the Pennsylvanian section (0-2103) has been reviewed and described below by Marshall S. Miller.

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>
0- 25	25'	No samples
25- 65	40'	Shale, gray, silty, finely micaceous, locally calcareous, with minor amounts of gray, fine to medium grained, poorly sorted, micaceous, sandstone
65-115	50'	Shale, gray to dark gray, silty, micaceous, with minor amounts of gray, fine grained sandstone
115-178	63'	Sandstone, light gray, fine to coarse grained, subangular, moderately to poorly sorted, with scattered muscovite, biotite, dark rock fragments, abundant clay and silt matrix material, about 70% quartz, 20% matrix, 10% rock fragments and accessory minerals
178-179	1'	Coal, silty and bony
179-192	13'	Sandstone, light gray, medium grained, sub-round to subangular, moderately sorted, with considerable, white clay matrix, and scattered rock fragments and accessory mineral, 75% quartz
192-193	1'	Coal, soft, crumbly, impure

193-202	10'	Sandstone, light gray to gray, fine to medium grained, subangular, poorly sorted, with abundant muscovite, biotite, chlorite, dark shaly fragments, and traces of feldspar, clay and silt matrix material, 60% quartz, 5% feldspar, 20% matrix, 15% accessory minerals and rock fragments
202-239	37'	No samples
239-258	19'	Shale, gray, silty, with abundant reddish-orange ironstone concretions
258-259	?	Coal, pure to impure, blocky fracture, silty in part
259-276	17'	Shale, dark gray, slightly silty, finely micaceous
276-313	37'	Sandstone, gray, fine to medium grained, subangular, poorly sorted, with abundant muscovite, shaly rock fragments, traces of feldspar, abundant clay and silt matrix material, about 60 to 65% quartz
313-338	25'	Shale, gray, silty, hard, finely micaceous
338-358	20'	Sandstone, light gray, fine to medium grained, subround to subangular, poorly sorted with abundant gray and green rounded shaly material, clay and silt matrix material
358-370	12'	Siltstone, gray, coarse grained, calcareous, siliceous
370-466	96'	Shale, gray to dark gray, silty, finely micaceous, with occasional minor amounts of fine grained sandstone
466-467	1'	Coal, pure to impure, silty in part
467-643	176'	Shale, dark gray, locally silty, finely micaceous, rarely carbonaceous
643-644	?	Coal, shaly, impure, irregular fracture

644-655	11'	Shale, dark gray, silty, with minor amount of fine grained, silty, sandstone
655-682	27'	Interbedded; shale, as in 644-655 and sandstone, gray, fine grained, silty
682-702	20'	Shale, dark gray to black, with reddish iron-stone concretions
702-783	81'	Sandstone, white, quartzose, fine to medium grained, occasionally coarse grained, sub-round to subangular, moderately to poorly sorted, little to no matrix material, rare dark rock fragments, 90% quartz, 5% matrix, 5% rock fragments, less than 1% accessory minerals
783-843	60'	Shale, gray, dark gray, silty, micaceous
843-884	41'	Sandstone, gray to light gray, fine to medium grained, subangular, poorly sorted, with abundant muscovite, biotite, chlorite, traces of feldspar, scattered dark rock fragments, clay and silt matrix material, about 60% quartz, 5% feldspar, 20% matrix
884-911	27'	Shale, gray, silty, finely micaceous and flaky
911-929	?	Coal, good show, blocky and conchoidal fracture, driller noted coal 924-927
929-940	11'	Shale, as in 884-911
940-958	18'	Sandstone, light gray, fine grained to medium grained and silty, micaceous, with interbedded gray shale and siltstone
958-1016	58'	Sandstone, light gray to white, fine to medium, moderately quartzose, with scattered amounts of dark carbonaceous material, large muscovite flakes, and chlorite, clay matrix material, 75 to 80% quartz
1016-1017	1'	Coal, silty, impure

1017-1029	12'	Shale, gray, silty, finely micaceous
1029-1044	15'	Sandstone, light gray to gray, fine grained, silty, micaceous
1044-1128	84'	Shale, dark gray to black, locally silty and carbonaceous
1128-1133	5'	Coal, good show, pure and impure, also noted by driller
1133-1173	40'	Shale, gray to dark gray, finely micaceous
1173-1207	34'	Sandstone, light gray, fine to medium grained, subangular to subround, poorly sorted, abundant clay and silt matrix material, very micaceous, with traces of feldspar, and interbedded with a dark gray shale
1207-1244	37'	Sandstone, white, quartzose, medium to coarse grained to granular, subangular to subround, poorly sorted, little or no matrix material, rare rock fragments, over 95% quartz, less than 5% matrix and fragments
1244-1279	35'	Shale, dark gray, hard, brittle, finely micaceous
1279-1314	35'	No samples
1314-1334	20'	Sandstone, light gray, moderately quartzose, fine to medium grained, subangular, poorly sorted, with carbonaceous-silt partings, medium grained muscovite flakes, abundant clay matrix material, 80% quartz, 15% matrix, 5% rock and mineral fragments
1334-1364	30'	Sandstone, white, quartzose, fine to medium grained, subround, moderately sorted, rare dark rock fragments, small amount clay-silica matrix, 90% quartz, 5% matrix, 5% rock fragments
1364-1387	23'	Sandstone, as in 1334-1364, but coarse grained and conglomeratic

1387-1407	20'	Sandstone, light gray to dull white, fine to coarse grained, subangular to subround, poorly sorted, with considerable amount coaly material, dark rock fragments, and green chloritic minerals, 80% quartz, 10% matrix, 10% rock and mineral fragments
1407-1422	15'	Sandstone, white, quartzose, fine to medium grained, subround to subangular, moderately sorted, rare rock fragments, little or no matrix material, 95% quartz
1422-1442	20'	Sandstone, gray, very fine to medium grained, subangular to subround, poorly sorted, micaceous, slightly feldspathic, interstitially silty with abundant clay and silt matrix material, 75 to 85% quartz
1442-1494	52'	Sandstone, white to light gray, quartzose, fine to medium to coarse grained, subangular to subround, moderately to poorly sorted, small amounts of muscovite, biotite, chlorite, and clay matrix material, about 90% quartz
1494-1534	40'	Sandstone, white, quartzose, medium grained to granular, subangular to subround, poorly sorted, no visible matrix material, only rare dark rock fragments, secondary quartz overgrowths visible, 95 to 100% quartz
1534-1591	57'	Sandstone, light gray, fine to medium grained, subround to subangular, poorly to moderately sorted, with scattered carbonaceous material and coaly carbonaceous partings, other dark rock fragments, traces of feldspar, considerable clay and silt matrix, about 70 to 75% quartz
1591-1629	38'	Sandstone, white, quartzose, medium grained to granular, with scattered conglomeratic quartz pebbles, subangular to subround, poorly sorted, little or no matrix material, only rare rock fragments, 95 to 100% quartz
1629-1639	10'	Coal, good show, pure to impure, silty and shaly in part

1639-1643	4'	Shale, dark gray to black, with fine grained, silty sandstone
1643-1658	15'	Coal, good show, blocky and conchoidal fracture, pure for the most part
1658-1714	56'	Sandstone, white, quartzose, medium grained to granular, subangular to subround, poorly sorted, little to no matrix material, secondary quartz overgrowths, rare rock fragments, 95 to 100% quartz
1714-1730	16'	Sandstone, as in 1658-1714, and conglomeratic
1730-1756	26'	Sandstone, as in 1658-1714
1756-1803	47'	Sandstone, gray, very fine to fine grained, subround to subangular, interstitially silty, very micaceous, with abundant dark argillaceous material, carbonaceous material, traces of feldspar, thin laminations of shaly carbonaceous material, 65 to 70% quartz
1803-1846	43'	Sandstone, white, quartzose, medium to coarse grained, subangular to round, moderately sorted, little or no matrix material, small amount of dark rock fragment, 90% quartz, 5% matrix, 5% rock fragments
1846-1887	41'	Sandstone, as in 1803-1846, with interbeds of dark gray shale and coaly material. (Difficult to determine which may be contamination.)
1887-2051	164'	Sandstone, white, quartzose, fine to medium grained, subround to subangular, moderately sorted, small amount of clay-silica matrix material, and scattered dark rock fragments, 90% quartz, 5% matrix, 5% rock fragments
2051-2060	9'	Shale, gray, silty, finely micaceous

2060-2103	43'	Sandstone, white, quartzose, coarse grained to conglomeratic, subangular to subround, poorly sorted, secondary quartz overgrowths, rare dark rock fragments, 95 to 100% quartz
2103-2119	16'	Shale, gray, silty and gray, fine grained, sandstone, slightly calcareous
2119-		Shale, red, grayish green, gray, reddish brown, locally calcareous

SUMMARY

Pennsylvanian System

Norton and Lee Formations
(undivided) surface - 2103'

Mississippian System

Bluestone Formation	2103	- 2596'
Princeton Sandstone	2596	- 2725' (?)
Hinton Formation	2725 (?)	- 3075'
Stony Gap Sandstone Member	2856	- 3075'
Bluefield Formation	3075	- 3301'
Greenbrier Limestone	3301	- 3865'
Maccrady and Price Formations (undivided)	3865	- 4022' (?)

Mississippian and Devonian Systems (undivided, probably repeated in part by faulting)

4022 (?) - 5688'

Silurian System

Cayuga Group	5688	- 5998' (?)
Clinton Formation	5998 (?)	- T. D.