

Company: Pipe Line Construction and Drilling Co.
 Farm: J. G. Buston et. al.
 Well No.: 1
 Location: Buchanan County
 8650' N. of 37°15'
 1300' W of 82°00'
 Elevation: 1909.50'
 Total Depth: 4088
 Drilling Commenced:
 Well Completed:
 Result: Gas Well

Geologic Log
 Samples studied and
 described by:
 John M. Wilson
 Virginia Division of
 Mineral Resources
 March, 1963

GEOLOGIC LOG

<u>Sample</u>	<u>Interval</u>	<u>Description</u>
0-2040	2040	No samples
2040-2082	42	Siltstone, variegated, locally finely sandy, red, green, tan, moderately soft, flaky, no apparent bedding, calcareous, siliceous, argillaceous, with: abundant biotite, abundant muscovite, abundant round, brown nodules of chert, and rare carbonaceous material.
2082-2088	6	No samples
2088-2136	48	Siltstone, variegated, locally finely sandy, light gray, red, green, tan, maroon-drab, moderately hard, brittle, no apparent bedding, slightly calcareous, argillaceous, with: abundant biotite, abundant muscovite, rare chert, and rare carbonaceous material.
2136-2144	8	No samples
2144-2183	39	Siltstone, locally finely sandy, locally shaly, light gray, red, green, tan, moderately soft, flaky, no apparent bedding to poorly fissile, slightly calcareous, argillaceous, with: abundant biotite, common muscovite, rare carbonaceous material, and common iron oxide stains
2183-2200	17	Siltstone, locally shaly, light to medium gray, red (rare), moderately hard, tough, no apparent bedding to poorly fissile, argillaceous, with: rare biotite, rare muscovite.

- 2200-2220 20 Siltstone, locally finely sandy, light gray, green (dark), moderately hard, tough, no apparent bedding, argillaceous, with: abundant biotite, abundant muscovite,
- 2220-2237 17 Siltstone, variegated, locally finely sandy, locally shaly, light to medium gray, red (drab), green, (tan), moderately hard, brittle, no apparent bedding to poorly fissile, calcareous, argillaceous, with: abundant biotite, abundant muscovite, rare pyrite, rare carbonaceous material, with stringers of Sandstone, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, calcareous, with: common biotite, common muscovite, and rare iron oxide stains. Nonporous to slightly porous.
- 2237-2254 17 Lithologies as in 2220-2237, interbedded.
- 2254-2289 35 Interbedded, siltstone, locally finely sandy, light to medium gray, green (rare), black, moderately soft, flaky, no apparent bedding to poorly fissile, siliceous, argillaceous, with: abundant biotite, abundant muscovite, and common carbonaceous material. Sandstone, white, clear, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, calcareous, with: abundant biotite, abundant muscovite, and common carbonaceous material. Nonporous
- 2289-2291 2 No samples
- 2291-2312 21 Interbedded, siltstone, locally finely sandy, light to dark gray, moderately soft, flaky, no apparent bedding, siliceous, argillaceous, with: common biotite, common muscovite, and abundant carbonaceous material. Sandstone, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, siliceous, with: common biotite, common muscovite, and common carbonaceous material. Nonporous to slightly porous.

2312-2334	22	Shale, locally finely sandy, medium gray to dark gray, red (rare, contamination?), moderately soft, flaky, fair to good fissility, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous material, rare carbonaceous laminae.
2334-2344	10	No samples
2344-2361	17	Shale, silty, as in 2312 to 2334.
2361-2380	19	Shale, locally finely sandy, medium to dark gray, brown, moderately hard, brittle, fair to good fissility, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous laminae.
2380-2398	18	Shale, locally silty, medium to dark gray, maroon-drab (rare), moderately hard, tough, fair to good fissility, argillaceous, with: rare biotite, rare muscovite, and stringers of Siltstone, locally finely sandy, light to medium gray, moderately soft, flaky, no apparent bedding, calcareous, siliceous, argillaceous, with: common biotite, common muscovite, and common carbonaceous material.
2398-2410	12	No samples
2410-2415	5	Sandstone, white, clear, light gray, moderately cemented, very fine-to medium-grained, medium sorted, rounded to subangular, interstitially clayey, calcareous, with: common biotite, rare muscovite, rare pyrite, common carbonaceous material, and rare iron oxide stains. Nonporous to slightly porous. Siltstone, locally shaly, light to dark gray, moderately hard, brittle, no apparent bedding to poorly fissile, siliceous, argillaceous, with: common biotite, common muscovite,
2415-2450	35	Siltstone, locally finely sandy, locally shaly, light to dark gray, moderately hard, tough, no apparent bedding to poorly fissile, argillaceous, with: common biotite, common muscovite, rare pyrite, and common coal fragments.

2450-2498	48	Siltstone, locally shaly, medium to dark gray, moderately soft, flaky, no apparent bedding to poorly fissile, argillaceous, with: common biotite, common muscovite, rare coal fragments and stringers of Sandstone, white, light brown, moderately cemented, very fine- to fine-grained, well sorted, well-rounded to subrounded, interstitially silty, siliceous calcareous, with: common biotite, rare muscovite, and rare carbonaceous material. Slightly porous.
2498-2502	4	Coal, vitreous, blocky and concoidal fracture, in part silty and impure (interpreted depth and thickness).
2502-2524	22	Siltstone, light gray, green, black, moderately soft, flaky, no apparent bedding to poorly fissile, siliceous, argillaceous, with: abundant biotite, common muscovite.
2524-2533	9	Limestone, shaly, light gray to light brown, white, moderately hard, fossil fragmental (rare), no apparent bedding to platy, microcrystalline, with: rare mica, common pyrite, rare calcite, and common carbonaceous material.
2533-2548	15	Siltstone, locally finely sandy, light gray, dark gray, green, moderately hard, brittle, no apparent bedding, slightly calcareous, argillaceous, with: abundant biotite, common muscovite, rare pyrite, rare coal fragments, and common iron oxide stains.
2548-2556	8	Limestone, light to dark gray, white, moderately hard, oolitic, common fossil fragments, no apparent bedding cryptocrystalline to microcrystalline, with: rare pyrite, abundant calcite, and rare iron oxide staining.
2556-2565	9	Sandstone, white, light gray, moderately cemented, very fine- to fine-grained, well sorted, rounded to subangular, siliceous, with: abundant biotite, common muscovite, rare pyrite, and abundant iron oxide stains. Slightly porous to porous.
2565-2567	2	No samples

2567-2572	5	Sandstone, as in 2556-2565.
2572-2582	10	Limestone, shaly, silty, light to dark gray, hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: common pyrite, rare chert, abundant calcite, rare carbonaceous material, and common iron oxide staining.
2582-2592	10	Shale, locally silty, light to medium gray, moderately hard, tough, poor to fair fissility, calcareous (slightly), argillaceous, with: rare muscovite, rare pyrite, and common iron oxide stains.
2592-2614	22	Limestone, shaly, silty, light to dark gray, white, moderately hard, fossil fragmental, no apparent bedding, microcrystalline, with: rare mica, common calcite.
2614-2624	10	No samples.
2624-2648	24	Lithology as in 2592-2614.
2648-2668	20	Siltstone, locally shaly, light to medium gray, red, green, moderately soft, flaky, no apparent bedding to poorly fissile, calcareous, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous material.
2668-2669	1	Interbedded, Siltstone, locally shaly, medium gray, red, green, moderately hard, brittle, no apparent bedding to poorly fissile, calcareous, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous material. Sandstone, white, clear, moderately cemented, very fine to fine-grained, well sorted, subrounded to subangular, interstitially silty, calcareous, with: rare biotite, rare muscovite, common chlorite, and abundant iron oxide stains. Nonporous to slightly porous.
2669-2677	8	No samples
2677-2688	11	Lithologies as in 2668-2669.
2688-2720	32	Sandstone, white, clear, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, interstitially silty, calcareous, with: common biotite, common muscovite, rare chlorite, common iron oxide stains. Nonporous to slightly porous.

2720-2722	2	No samples
2722-2750	28	Sandstone, white, clear, moderately cemented, very fine-to medium-grained, medium sorted, subangular, to angular, siliceous, calcareous, with: rare biotite, rare muscovite, and abundant iron oxide stains. Nonporous to slightly porous. with stringers of Siltstone, locally shaly, medium to dark gray, moderately hard, tough, no apparent bedding to poorly fissile, siliceous, argillaceous, with: common biotite, common muscovite.
2750-2767	17	No samples
2767-2778	11	Shale, variegated, locally finely sandy, light gray, red, green, tan, moderately soft, brittle, no apparent bedding, argillaceous, ferruginous, with: abundant biotite, abundant muscovite, with stringers of Limestone, shaly, light to dark gray, moderately hard, no apparent fossil content, platy, microcrystalline, with: rare calcite, and rare iron oxide staining.
2778-2780	2	Siltstone, locally finely sandy, light gray, dark gray, red, green, moderately soft, flaky, no apparent bedding, calcareous, argillaceous, ferruginous, with: abundant biotite, abundant muscovite, and rare carbonaceous material.
2780-2789	9	No samples
2789-2829	40	Lithology as in 2778-2780.
2829-2834	5	Sandstone, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, sub-rounded to subangular, interstitially silty, siliceous, calcareous, with: abundant biotite, abundant muscovite, and common carbonaceous material. Nonporous to slightly porous.
2834-2836	2	No samples
2836-2850	14	Lithology as in 2829-2834.
2850-2856	6	No samples
2856-2863	7	Siltstone, grades locally to a very fine-grained Sandstone, locally, finely sandy, light to dark gray, moderately soft, brittle, no apparent bedding, siliceous, argillaceous, with: abundant biotite, abundant muscovite, and rare iron oxide stains.

2863-2940	77	No samples
2940-2970	30	Interbedded, Siltstone, locally shaly, medium to dark gray, moderately hard, tough, no apparent bedding, argillaceous, with: rare biotite, rare muscovite, and rare carbonaceous material. Sandstone, white, light gray, moderately cemented, very fine-to fine-grained, well sorted, subrounded to angular; interstitially silty, siliceous, calcareous, with: abundant biotite, abundant muscovite, common carbonaceous material, and common iron oxide stains. Nonporous to slightly porous.
2970-2990	20	Limestone, shaly, silty, dark gray, dark brown, moderately hard, fossil fragmental, no apparent bedding to platy, microcrystalline, with: rare mica, rare calcite. (X-ray diffraction check)
2990-3000	10	Siltstone, locally shaly, medium to dark gray, moderately hard, brittle, no apparent bedding to poorly fissile, argillaceous, with: common biotite, common muscovite, rare pyrite, and rare carbonaceous material. With stringers of Limestone, silty, dark gray, moderately hard, no apparent bedding, microcrystalline, with: rare calcite.
3000-3010	10	Lithologies as in 2990 to 3000, with stringers of Sandstone, white, clear, moderately cemented, very fine to fine-grained, well sorted, rounded to subangular, interstitially silty, siliceous, with: common biotite, rare muscovite, and rare carbonaceous material. Nonporous to slightly porous.
3010-3305	295	No samples
3305-3345	40	Limestone, silty, light to dark gray, moderately hard, common fossil fragments, no apparent bedding, microcrystalline, with: rare mica, and common calcite.
3345-3355	10	Siltstone, locally shaly, medium to dark gray, moderately hard, tough, no apparent bedding to poorly fissile, calcareous, argillaceous, with: common biotite, common muscovite, common pyrite, rare iron oxide stains. Stringers of Sandstone, White, light gray, moderately cemented, very fine to medium grained, medium sorted, subrounded to angular, interstitially silty, siliceous, with: common biotite, common muscovite, rare carbonaceous material. Slightly porous.

3355-3415	60	Sandstone, white, light gray, moderately cemented, very fine-to fine-grained well sorted, subrounded to subangular, interstitially silty, calcareous, with: abundant biotite, abundant muscovite, and rare iron oxide stains. Nonporous. With stringers of Siltstone, locally finely sandy, light to dark gray, red (contamination ?), moderately hard, brittle, no apparent bedding, calcareous, argillaceous, with: common biotite, common muscovite
3415-3438	23	Siltstone, locally shaly, medium to dark gray, moderately hard, brittle, no apparent bedding to poorly fissile, argillaceous, with: rare biotite, rare muscovite, and stringers of Sandstone, white, clear, moderately cemented, very fine-to fine-grained, well sorted, subrounded to subangular, siliceous, calcareous, with: rare biotite, rare muscovite. Slightly porous to porous.
3438-3439	1	No samples
3439-3491	52	Shale, light to dark gray, moderately soft, flaky, poorly fissile to fair fissility, calcareous, argillaceous, with: rare biotite, rare muscovite, and common fossils (crinoids)
3491-3548	57	Limestone, shaly, dark gray, dark brown, moderately hard, fossil fragmental, no apparent bedding to platy, cryptocrystalline, with: rare mica, and rare calcite.
3548-3556	8	No samples
3556-3566	10	Limestone, dark gray, light to dark brown, black, moderately hard, abundant fossil fragments, no apparent bedding, microcrystalline, with: rare mica, and common calcite
3566-3568	2	No samples
3568-3636	68	Siltstone, locally shaly, light to medium gray, moderately hard, brittle, no apparent bedding, calcareous, argillaceous, with: rare biotite, rare muscovite, rare pyrite, rare calcite and rare fossil fragments.
3636-3655	19	Limestone, silty, light to dark gray, moderately hard, abundant fossil fragments, no apparent bedding, cryptocrystalline, with: rare mica, and common calcite.

3655-3644	9	Limestone, light to dark gray, white, moderately soft, abundant fossil fragments, no apparent bedding, microcrystalline, with: rare pyrite, abundant calcite.
3664-3668	4	Limestone, light to dark gray, light to dark brown, white, moderately hard, oolitic, common fossil fragments, no apparent bedding, microcrystalline, with: abundant calcite.
3668-3705	37	Limestone, shaly, light gray, dark gray, moderately hard, rare fossil fragments, no apparent bedding to platy, cryptocrystalline, with: abundant calcite, and rare iron oxide staining.
3705-3709	4	No samples
3709-3722	13	Limestone, light gray, light to dark brown, tan, moderately hard, with: rare oolitic structure, common fossil fragments, no apparent bedding, microcrystalline, with: abundant calcite.
3722-3728	6	Limestone, light to dark gray, moderately hard, oolitic, fossils (crinoids, gastropods, abundant foraminifera), no apparent bedding, microcrystalline, with: abundant calcite, and rare anhydrite (?).
3728-3766	38	Limestone, silty, light gray, tan, white, moderately hard, rare oolitic structure, common fossil fragments, no apparent bedding, cryptocrystalline, with: common calcite.
3766-3767	1	No samples
3767-3790	23	Limestone, silty, light to dark gray, light brown, moderately hard, with: rare oolitic structure, no apparent fossil content, no apparent bedding, cryptocrystalline to microcrystalline, with: rare calcite.
3790-3864	74	Limestone, light to dark gray, tan, moderately hard, rare fossil fragments, no apparent bedding, microcrystalline, with: rare mica, and rare calcite.
3864-3881	17	Limestone, light to dark gray, tan, white, moderately hard, rare fossil fragments, no apparent bedding, microcrystalline, with: common calcite, and rare iron oxide staining.

3881-3891	10	Limestone, dark gray, light brown, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare mica, rare calcite.
3891-3892	1	No samples
3892-3940	48	Lithology as in 3881-3891/
3940-3944	4	No sample
3944-3964	20	Limestone, light to dark gray, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline to microcrystalline, with: common mica, and rare calcite.
3964-4000	36	Limestone, light brown, tan, white, moderately soft, rare fragments, no apparent bedding, microcrystalline, with: common calcite.
4000-4002	2	No sample
4002-4043	41	Lithology as in 3964-4000
4043-4051	8	Limestone, light brown, tan, white, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline, with: rare calcite, and rare carbonaceous material.
4051-4078	27	Limestone, dark gray, light to dark brown, moderately hard, no apparent fossil content, no apparent bedding, cryptocrystalline to microcrystalline, with: rare calcite and rare iron oxide staining.
4078-4088 (T. D.)	10	No samples

GEOLOGIC SUMMARY

Mississippian System

Bluestone Formation	in	2040
	bottom	2404 ₊
Princeton Sandstone	top	2404 ₊
	bottom	2572
Hinton Formation	top	2572
	bottom	(?)
Stony Gap Sandstone	top	(?)
	bottom	(?)
Bluefield Formation	top	(?)
	bottom	3491
Greenbrier Limestone	top	3491
	in	4078 (deepest sample)

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

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