

6-76-51
C

J. W. Isner No. 1 Well.

New Interest District, Randolph County, W. Va.
By South Penn Oil Company, Parkersburg, W. Va.
Located 5.2 miles S. of 39° 05' and 3.95 miles W. of 79° 45'
Belington Quadrangle - SE
Elevation 1972.91 L (Ground)
Permit - Randolph - S
Drilling commenced June-1949;
Dry Hole
Section based on samples from 1450 to 6095; examined by Russell R. Flowers.

Top Bottom Thickness

1450	1481	31	Shale, black, highly calcareous
<u>Huntersville Formation, 244 Feet.</u>			
1481	1504	23	Limestone (very shaly) to calcareous shale, dark-gray to black (carbonaceous), small amount is cherty; small amount of brownish-black to dark yellowish brown siltstone (bentonitic), very shaly
1504	1528	24	Chert, very light gray to medium light gray (translucent to opaque), medium dark gray to dark-gray and brownish-black ("dead"), very shaly, calcareous and dolomitic; small amount is very silty and glauconitic
1528	1537	9	Chert, very light to medium-gray and brownish-gray (very shaly), mostly opaque, contains siliceous sponge spicules (?), dolomitic and somewhat calcareous, somewhat glauconitic in part
1537	1551	14	Chert, white (opaque to milky), light- to medium-gray ("dead"), glauconitic in part, contains spots and streaks of brownish-gray to brownish-black (very shaly) material, somewhat dolomitic
1551	1566	15	Chert, white (opaque) to very light gray (milky), some brownish-gray to brownish-black spots and streaks (very shaly); small amount of medium-gray, glauconitic siltstone
1566	1578	12	Chert, light to medium light gray, translucent to opaque, contains large numbers of siliceous sponge spicules (?) and some dark-gray (shaly) material
1578	1587	9	Chert to siltstone, medium light to medium-gray, some dark-gray (shaly) streaks, glauconitic; trace of pyrite
1587	1591	4	Siltstone, medium-gray, some medium light gray, some dark-gray (shaly), very cherty, somewhat glauconitic, slightly dolomitic
1591	1600	9	Chert to siltstone, medium- to dark-gray (shaly), glauconitic, somewhat pyritic
1600	1610	10	Chert, medium- to dark-gray (very shaly), silty, somewhat pyritic; glauconitic in part; small amount of dolomitic
1610	1646	36	Chert, medium-gray, "dead", silty in part; chert, medium dark gray to grayish-black, shaly to silty shale; small amount of pyrite finely disseminated in the chert throughout this interval

1646	1661	15	Chert, dark-gray to grayish-black, very shaly; some medium to medium dark gray ("dead") chert
1661	1672	11	Chert (very shaly) to shale (siliceous), medium dark to dark-gray, some dark-gray to grayish-black
1672	1692	20	Shale, dark-gray to grayish-black, silicified in part, small amount is pyritic
1692	1708	16	Shale, dark-gray to grayish-black at the top to medium dark and dark-gray at the bottom, some of the shale contains pyritized sponge spicules (?), moderately pyritic
1708	1715	7	Shale, medium dark gray to grayish-black, pyritic; trace of glauconite
1715	1717	2	Chert, medium- to dark-gray; silty, shaly in part, highly calcareous in part
1717	1725	8	Limestone, medium-gray, very silty, cherty to a dark-gray and grayish-black, silty, calcareous shale

Oriskany Sandstone, 139 Feet.

1725	1734	9	Sandstone, light-gray with some medium-gray spots, fine- to coarse-grained, very highly calcareous with limestone spots, most of the sand grains are clear and glassy (subrounded to rounded) quartz
1734	1742	8	Limestone (very sandy) at top to sandstone (very highly calcareous) at the bottom, medium light gray, fine- to medium-grained, subrounded to rounded, some black (interstitial) material, an occasional coarse (quartz) grain
1742	1747	5	Limestone (very sandy) at top to sandstone (very highly calcareous) at the bottom, mostly medium light gray, very fine to fine-grained, mostly subrounded, contains a little black (shaly) material
1747	1753	6	Sandstone, light-gray, very fine to fine-grained with some medium grains at the top to fine- and medium-grained at the bottom, subrounded to rounded, highly calcareous, contains a little black (shaly) material
1753	1756	3	Sandstone, very light to light-gray, medium- to coarse-grained, subrounded to rounded; contains medium-gray, fine to medium-grained, shaly, highly calcareous spots
1756	1758	2	Sandstone, very light to light-gray (with some medium-gray, shaly streaks), fine- to medium-grained, subrounded to rounded, some coarse grains, calcareous
1758	1762	4	Sandstone, light-gray (with dark-gray to grayish-black, very shaly, highly calcareous, silty streaks), fine to medium-grained, subrounded to rounded, some coarse grains
1762	1766	4	Sandstone, very light to light-gray, fine to medium-grained, subrounded to rounded, some coarse grains, highly calcareous in part, some dark-gray to black (shaly) material
1766	1768	2	Sandstone, light- to dark-gray, very fine to coarse grained, highly calcareous, very shaly in part

1768	1770	2	Sandstone, light-gray, some dark-gray (shaly) streaks, very fine to medium-grained, some coarse grains, calcareous
1770	1772	2	Sandstone (highly calcareous) to limestone (very sandy), light- to dark-gray, very shaly in part
1772	1778	6	Sandstone, light-gray (with medium-gray, somewhat shaly, calcareous streaks), very fine to coarse grained, highly calcareous in part
1778	1791	13	Sandstone, light-gray with medium-gray (shaly) streaks, very fine to medium-grained, highly calcareous
1791	1797	6	Sandstone, light to medium light gray, fine- to medium-grained at the top, very fine to fine-grained with some medium grains in the middle and lower parts, very highly calcareous with fossiliferous (limestone) spots, some dark (shaly) material, shaly in part at the bottom
1797	1804	7	Sandstone, medium- to dark-gray, very fine grained, some fine grains, highly calcareous, with fossiliferous (limestone) spots, shaly
1804	1820	6	Sandstone, light-gray (with some medium gray, shaly streaks), very fine to fine-grained, some medium grains at the top, calcareous
1810	1819	9	Sandstone, very light gray, fine- to medium-grained, subrounded to rounded, some coarse grains, mostly quartz, somewhat calcareous, small amount of black (interstitial) material
1819	1823	4	Sandstone, light-gray, very fine to fine-grained, some medium grains, contains some black (interstitial) material, somewhat calcareous
1823	1830	7	Sandstone, medium-gray (color due to black interstitial material), fine-grained with many medium to coarse grains, very fine grained in part, calcareous
1830	1855	25	Sandstone, medium light to light-gray, fine- to medium-grained, subrounded to rounded, some coarse grains, fine to very fine at the top, slightly calcareous, all of this sandstone contains some black (interstitial) material but is mostly quartz
1855	1864	9	Sandstone, light-gray, very fine to fine-grained, some medium to coarse (well rounded) grains, calcareous

Holderberg Formation, 700 Feet.

1864	1868	4	Sandstone, light to medium light gray, some dark gray (shaly) streaks, very fine grained, highly calcareous
1868	1876	8	Sandstone, medium light to medium dark gray, very fine grained, some dark-gray (shaly) streaks, darker in color at the top, highly calcareous; a little chert at the bottom
1876	1881	5	Sandstone (very fine) to chert at the top to siltstone and sandstone (very fine) at the bottom, medium light to medium-gray, some dark-gray (very shaly), very highly calcareous
1881	1887	6	Sandstone (very fine) to siltstone, medium to dark-gray (very shaly), very highly calcareous at the top to a very silty and sandy, somewhat cherty limestone at the bottom, lighter in color in the lower part

1887	1889	2	Limestone, medium light to medium-gray, (with brownish-gray cast), some dark-gray (shaly), very sandy (very fine) and silty, cherty
1889	1906	17	Limestone, light- to medium-gray (with light-gray spots), very sandy (very fine to coarse-grained), mostly fine to very fine at the bottom, contains some dark-gray (shaly) material
1906	1918	12	Limestone, medium light to medium-gray, some dark gray (shaly), very sandy (very fine)
1918	1922	4	Limestone, medium- to dark-gray (with brownish-gray cast), very sandy (very fine) and very silty
1922	1928	6	Limestone, medium light to medium dark gray, very sandy (very fine to medium-grained)
1928	1937	9	Limestone, light- to medium-gray, very sandy (very fine to fine)
1937	1945	8	Limestone, medium to medium dark gray, sandy (very fine to fine)
1945	1958	13	Limestone (very sandy) to sandstone (very fine to, finest, very highly calcareous), medium light to medium-gray, small amounts of dark, shaly material
1958	1975	17	Sandstone, light-gray at the top to medium light gray at the bottom, some medium-gray (shaly) in the lower part, very highly calcareous with some sandy limestone, very fine to fine-grained
1975	1982	7	Limestone, medium- to dark-gray (shaly) with some light-gray spots, very sandy (very fine to fine, some fine to medium grains), silty
1982	1998	16	Sandstone, medium-gray, very fine to fine-grained, very highly calcareous to a dark-gray (very silty) and sandy, shaly) limestone, cherty in part
1998	2010	12	Limestone, medium- to dark-gray, some grayish-black (very shaly), very silty to a calcareous siltstone and silty shale, more shaly in the lower part, somewhat cherty
2010	2016	6	Shale, dark-gray to grayish-black, very highly calcareous, silty; some medium- to dark-gray, very silty, and sandy (very fine) limestone; small amount of chert
2016	2031	15	Limestone, dark-gray to grayish-black, very silty to a calcareous siltstone and a grayish-black to brownish-black, silty, calcareous shale
2031	2054	23	Limestone, dark-gray to brownish-black, silty and very shaly to a grayish-black, calcareous shale
2054	2083	29	Shale, brownish-black to grayish-black, highly calcareous with limestone spots, more highly calcareous in the lower part
2083	2183	100	Shale (highly calcareous) with some very shaly limestone, brownish-black to black (with some light- to medium-gray limestone spots)
2183	2197	14	Shale, brownish-black to grayish-black, highly calcareous; some medium-gray to brownish-black limestone, very shaly (2197 to 2196 depth correction?)
2196	2205	9	Limestone, medium-gray to brownish-gray, shaly, cherty, glauconitic in part

2205	2233	28	Limestone, medium light gray to brownish-gray and medium-gray to brownish-black (shaly), cherty, silty (tiny euhedral quartz grains), somewhat sandy (fine to very fine)
2233	2251	18	Limestone, medium-gray to brownish-gray, some dark-gray to brownish-black (shaly), very sandy (fine to medium at the top, very fine to fine at the bottom); small amount of chert
2251	2256	5	Limestone, brownish-black (with very light to light gray spots), small amount is dolomitic; sandy in part (fine to very fine)
2256	2268	12	Limestone, medium to medium dark gray, very silty, dolomitic; a large amount of brownish-black, very shaly, somewhat dolomitic limestone
2268	2283	15	Shale, (very highly calcareous) and some limestone (very shaly), dark-gray to brownish-black, somewhat dolomitic
2283	2305	22	Shale (very highly calcareous) to limestone, very shaly, dark-gray to brownish-black, some brownish-black to greenish-black, somewhat dolomitic; a large amount of medium to medium dark gray, very silty, somewhat dolomitic limestone in the middle part
2305	2318	13	Limestone, dark-gray to grayish-black and brownish-black (with medium-gray spots), very shaly with some calcareous shale
2318	2387	69	Limestone, dark-gray to brownish- and grayish-black (with light- to medium-gray spots), very shaly to a calcareous shale, dolomitic, somewhat dolomitic in the lower part, silty in the upper part, very cherty at 2331' to 2334', less shaly toward the bottom; this interval is less shaly than the above interval
2387	2396	9	Limestone, medium- to dark-gray (somewhat shaly) to grayish-black (very shaly to shale), some light-gray, silty, fossiliferous
2396	2403	7	Limestone, medium light to medium-gray, some light-gray, shaly, silty, somewhat cherty
2403	2409	6	Limestone, very light to medium light-gray, some medium-gray (shaly), very silty, somewhat cherty
2409	2414	5	Limestone, very light to light-gray, elastic texture, somewhat cherty and shaly
2414	2431	17	Shale, dark-gray to grayish- and olive-black, calcareous (with highly fossiliferous, limestone spots); some medium light to dark-gray chert
2431	2437	6	Siltstone, dark-gray to olive-gray, highly calcareous, much kaolinitic material; some light- to medium-gray chert
2437	2460	23	Shale, (calcareous) to limestone (very shaly), medium dark to dark-gray (with brownish cast in lower part), silty in part, somewhat cherty, fossiliferous
2460	2480	20	Limestone (very shaly) and some calcareous shale, dark-gray (with olive-cast), some grayish-black, fossiliferous, somewhat silty
2480	2490	10	Limestone, dark-gray to olive-black, very shaly, highly fossiliferous chert

2490	2510	20	Limestone, mottled medium-gray (fossiliferous) and dark-gray to brownish-black (very shaly), somewhat silty; some dark-gray to brownish-black calcareous shale
2510	2515	5	Limestone, brownish-black to grayish-black, very shaly, and limestone, light-gray to medium dark gray (with brownish cast), highly fossiliferous
2515	2536	21	Limestone, brownish-gray to medium and medium dark gray, a large amount of brownish-black to grayish-black (very shaly) at the top, silty in the upper part, sandy in the middle and lower part, slightly dolomitie
2536	2552	16	Limestone, dark-gray to grayish-black and brownish-black, very shaly and very silty with some calcareous shale and siltstone, dolomitie in the lower part
2552	2564	12	Limestone, dark-gray to grayish-black (with brownish cast), very silty and very shaly to a calcareous siltstone and shale, dolomitie

Cayugan Series, 436 Feet.

2564	2574	10	Dolomite-anhydrite rock, brownish-black to black, some brownish-gray to dark-gray, shaly and calcareous at the top, extremely fine textured (microscopically fine x 450)
2574	2695	121	Dolomite-anhydrite rock, brownish-black to black, with light-gray to brownish-gray anhydrite spots, some brownish-black to grayish-black, shaly to very shaly, calcareous in the upper and lower parts
2695	2745	50	Dolomite, brownish-black to black, mostly brownish-black at 2709 to 2735, very shaly, contains a moderate amount of anhydrite, calcareous, somewhat sandy at the bottom
2745	2757	12	Dolomite, brownish-black to black, very shaly to a dolomitie shale; dolomite, olive-gray to dusky yellowish brown, highly calcareous, very shaly
2757	2769	12	Dolomite, brownish-black to black, calcareous to dolomitie limestone, the residue contains a very large amount of dark colloidal material, shaly
2769	2777	8	Dolomite, brownish-black to black, somewhat shaly, a large amount of dark colloidal material left in residue; a large amount of brownish-gray to olive-gray, calcareous dolomite; some anhydrite in the upper part
2777	2791	14	Dolomite to limestone, brownish-black to grayish-black to black, very shaly to a calcareous, dolomitie shale; some white to light-gray anhydrite
2791	2812	21	Dolomite, brownish- and grayish-black to black, highly calcareous, very shaly and silty
2812	2825	13	Limestone, brownish-black to grayish-black, dolomitie, somewhat sandy (fine to medium), some anhydrite
2825	2832	7	Limestone, brownish-black to grayish-black, highly dolomitie, very shaly
2832	2848	16	Limestone, brownish-black to grayish-black, dolomitie, some calcareous dolomite, shaly at the top to somewhat shaly at the bottom, somewhat silty, fossiliferous

2848	2869	21	Limestone (dolomitic) to dolomite (calcareous), olive-gray to brownish-black, dark-gray to grayish-black, shaly and silty at the top to very shaly and very silty at the bottom
2869	2877	8	Siltstone and silty shaly, medium dark to dark-gray, highly calcareous and highly dolomitic; some brownish-gray to brownish-black, silty limestone; small amount of light-gray, silty chert
2877	2886	9	Shale, olive-gray to dark-gray, some grayish-black, highly calcareous, dolomitic, silty; some light- to medium-gray chert
2886	2897	11	Shale, dark-gray, highly calcareous, somewhat dolomitic, sandy in part to a very sandy (very fine) limestone (with brownish cast)
2897	2906	9	Limestone (very shaly to a calcareous shale, dark-gray to grayish-black (with brownish cast), very silty, fossiliferous
2906	2911	5	Limestone, medium dark gray to olive-gray to brownish and grayish-black, dolomitic, somewhat shaly, very silty and sandy
2911	2980	69	Limestone, dusky yellowish brown to brownish-black, somewhat dolomitic in the upper part, the residue contains a moderate to large amount of very dark colloidal material; small amount of white anhydrite throughout
2980	2985	5	Limestone, dark to dusky yellowish brown, very sandy, (very fine to fine, rounded, some medium grains); some light olive gray to greenish-gray, calcareous siltstone; some brownish-black to black limestone
2985	3000	15	Limestone, brownish-black to black with a small amount of white dolomite; some dark to dusky yellowish brown, sandy limestone

---Fault---Huntersville Formation, 55 Feet.

3000	3049	49	Shale, black and grayish-black to black, highly carbonaceous, contains some brownish-black to grayish-black limestone nodules; some very fine to coarsely crystalline pyrite; small amount of white to light-gray vein calcite
3049	3055	6	Siltstone to sandstone (very fine), dark-gray to grayish-black (with brownish cast), very highly calcareous, very shaly, contains a very small amount of chert; a very large amount of grayish-black to black shale

Oriskany Sandstone, 122 Feet.

3055	3065	10	Sandstone, light to medium light gray, fine- to medium-grained, subrounded to rounded, some coarse grains, mostly quartz, very highly calcareous, contains a little shaly material
3065	3069	4	Limestone, light to medium light gray, very sandy (mostly fine to medium, subrounded to rounded grains)
3069	3090	21	Sandstone, light-gray, very fine to fine-grained, some medium grains, subrounded to rounded, very highly calcareous, contains a very small amount of dark (shaly) material

3090	3100	10	Sandstone, very light to light-gray (with an occasional dark-gray, shaly streak), very fine to medium-grained, subrounded to rounded, many coarse grains in the upper part, highly calcareous
3100	3105	5	Sandstone, light-gray, some medium-gray (shaly), very fine to fine-grained, some medium grains, calcareous
3105	3126	21	Sandstone, very light to light-gray, very fine to fine grained, some medium grains, subrounded to rounded, very fine to medium-grained at the top, highly calcareous
3126	3128	2	Sandstone, very light to medium light gray, very fine to fine-grained, some medium grains, very highly calcareous, contains dark (shaly) streaks
3128	3131	3	Sandstone, light-gray (with medium- to dark-gray, very shaly streaks), very fine grained, very silty, highly calcareous
3131	3134	3	Sandstone, light-gray, some dark-gray (shaly) streaks, very fine, very silty, very highly calcareous
3134	3138	4	Sandstone, light to medium light gray, small amount of medium- to dark-gray (somewhat shaly), very fine to fine grained, highly calcareous
3138	3155	17	Sandstone, very light gray, very fine to fine-grained, some medium grains, fine- to medium-grained at the top, somewhat calcareous, quartzose
3155	3169	14	Sandstone, white to very light gray, fine-grained, some medium grains, fine to very fine grained in part, quartzose, slightly calcareous
3169	3177	8	Sandstone, very light gray, fine-grained, some medium grains, somewhat calcareous, quartzose, very fine grained at the bottom

Halderberg Formation, 739 Feet.

3177	3187	10	Sandstone, light-gray, light-gray to medium light gray at the bottom, very fine-grained, very highly calcareous, contains some dark (shaly) material
3187	3198	11	Siltstone to sandstone (very fine), medium light gray (at the top) to medium dark gray (at the bottom), very highly calcareous, slightly shaly
3198	3208	10	Siltstone to sandstone (very fine), medium- to dark-gray, some medium light gray in the lower part, very highly calcareous to a very silty, shaly, very cherty limestone
3208	3217	9	Sandstone (highly calcareous) to limestone (very sandy), medium light to medium dark gray, very fine grained, some fine to medium grains, somewhat shaly and silty
3217	3241	24	Limestone, light- to dark-gray, very sandy (very fine, some medium grains), somewhat shaly
3241	3243	2	Sandstone, light to medium light gray, very fine to fine-grained, very highly calcareous
3243	3264	21	Limestone, medium light to medium dark gray (with some light-gray spots), very sandy (very fine to fine-grained) some medium grains in the upper part

3264	3297	33	Limestone (very sandy) to sandstone (very highly calcareous), light- to medium-gray, very fine to fine grained, some medium grains, somewhat shaly in the lower part, silty at the bottom
3297	3305	8	Siltstone (sandy, very fine) to limestone (very silty and sandy), medium- to dark-gray (with grayish-black, shaly streaks), somewhat cherty
3305	3317	12	Shale, dark-gray to grayish-black, silty, calcareous to a very silty limestone, medium light to medium dark gray, somewhat cherty
3317	3329	12	Shale, grayish-black, highly calcareous, silty; some medium to dark-gray, very silty limestone
3329	3337	8	Limestone, medium- to dark-gray, some grayish-black, very silty; some grayish-black, calcareous shale; small amount of light-gray chert
3337	3349	12	Limestone, dark-gray to grayish-black, very shaly and very silty to shale, grayish-black, highly calcareous, fossiliferous; small amount of light-gray chert
3349	3416	67	Shale, grayish-black to black, highly calcareous; a moderate to large amount to large amount of grayish-black to brownish-black to black, very highly calcareous shale to shaly limestone
3416	3423	7	Shale, grayish-black to black, highly calcareous
3423	3468	45	Shale, grayish-black to black, highly calcareous; a moderate to large amount of brownish- and grayish-black, very highly calcareous shale to shaly limestone; a very small amount of white to light-gray chert
3468	3480	12	Shale, grayish-black to black, highly calcareous; small amount of light- to dark-gray chert
3480	3497	17	Shale, grayish-black, some grayish-black to black, highly calcareous; a moderate amount of grayish- and brownish-black, very highly calcareous shale to shaly limestone, silty and cherty at the bottom
3497	3512	15	Limestone (very cherty) to calcareous chert, medium light to medium dark gray, some dark-gray (shaly), some of the limestone has a brownish cast in the lower part, slightly glauconitic
3512	3535	23	Limestone, light- to dark-gray (shaly), very cherty, silty (tiny euhedral quartz crystals)
3535	3551	16	Limestone, light- to medium-gray, some dark-gray (shaly), very sandy (fine to very fine), somewhat cherty
3551	3611	60	Limestone, brownish- and olive-black to black, some dark-gray to grayish-black, very shaly to highly calcareous shale, silty at the top, cherty at the bottom, somewhat dolomitic
3611	3660	49	Limestone (very shaly) to shale (highly calcareous), dark-gray to grayish-black, brownish-black to grayish-black; dolomitic in part, highly fossiliferous; trace of light-gray chert
3660	3677	17	Limestone, very light to medium-gray, dark-gray to grayish-black (shaly), highly fossiliferous, very shaly, cherty at the top to very cherty at the bottom, somewhat silty in the upper part

3677	3700	23	Shale, medium dark to dark-gray, calcareous to highly calcareous (with some medium- to dark-gray, very shaly limestone), fossiliferous, very silty in part; small amount of chert
3700	3712	12	Limestone, medium dark to dark-gray, very shaly, silty, somewhat cherty, contains fossil fragments
3712	3760	48	Shale (highly calcareous) and some limestone (very silty, very shaly), dark-gray (with brownish cast in the upper part), some grayish-black, very cherty at the top
3760	3772	12	Limestone (very shaly) to shale (highly calcareous), dark-gray to grayish-black, some brownish-black, some fossil fragments, silty and somewhat cherty
3772	3783	11	Limestone, grayish-black to brownish-black, some brownish- and grayish-black, shaly, much very fine silt, some clear crystalline quartz, the residue contains a large amount of dark colloidal material, small amount is dolomitic
3783	3798	15	Limestone (very shaly) to shale (highly calcareous), grayish-black to brownish-black, some medium-gray, some very fine silt at the top; a very small amount of white calcite
3798	3816	18	Limestone, dark-gray to grayish-black (with brownish cast) very silty and sandy (very fine) to a very highly calcareous, sandy siltstone, shaly, dolomitic; some white calcite and dolomite

. Cayugan Series, 604 Feet.

3816	3876	60	Dolomite (very shaly) to anhydrite (dolomitic), grayish-black to black, some brownish-black, dark-gray to grayish-black and brownish-black in the upper part, some white to medium-gray (mostly anhydrite)
3876	3900	24	Dolomite (shaly) and anhydrite (dolomitic), brownish- and grayish-black to black; some brownish-black to black limestone, the residue contains a large amount of very dark colloidal material; some white to light-gray, vein anhydrite
3900	3918	18	Dolomite (very shaly) to anhydrite (dolomitic), brownish-black to grayish-black, brownish-black to black, some light-gray to brownish-gray, calcareous
3918	3935	17	Dolomite, brownish-black to black, some brownish-gray to brownish-black, highly calcareous; some anhydrite; the residue contains a large amount of very dark colloidal material
3935	3944	9	Dolomite (very shaly) to shale (dolomitic), grayish-black to black, some brownish-black to grayish-black; some light-gray anhydrite
3944	3982	38	Dolomite (very shaly) to shale (highly dolomitic), grayish-black to black, some olive-black and brownish-black to grayish-black (a large amount at the bottom), highly calcareous (with some dolomitic limestone), silty at the top; some anhydrite in the upper part
3982	3985	3	Dolomite, brownish-black to grayish-black, some light gray to brownish-gray, very highly calcareous to dolomitic limestone, very shaly to dolomitic shale
3985	4000	15	Shale, grayish-black to black, highly dolomitic (at the top) to a very shaly dolomite at the bottom; some brownish-black, highly dolomitic limestone at the top and a large amount at the bottom

4000	4030	30	Limestone, dark-gray to grayish-black, some medium dark gray, very silty and sandy (very fine), very shaly to calcareous shale, somewhat dolomitic; some brownish-black limestone in the lower part
4030	4035	5	Shale, dark-gray to black, highly calcareous, dolomitic in part; some brownish-black limestone; trace of chert
4035	4042	7	Limestone, brownish-black to grayish-black, very shaly, highly fossiliferous; shale, dark-gray to black, highly calcareous
4042	4048	6	Limestone, brownish-black to grayish-black, shaly, dolomitic in part; shale, grayish-black to black, calcareous, dolomitic in part
4048	4053	5	Limestone, brownish-black to grayish-black and black, moderately to highly dolomitic, residue contains a large amount of very dark colloidal material; some grayish-black, calcareous shale
4053	4190	137	Limestone, brownish-black, some brownish-black to black (shaly), slightly dolomitic, somewhat silty (very fine quartz crystals), the residue contains a moderate amount of very dark (colloidal) material; small amounts of white, vein dolomite; some samples contain moderate amounts of dolomite
4190	4204	14	Shale (highly calcareous and highly dolomitic) to a very shaly and silty, dolomitic limestone, a medium-dark to dark-gray; a large amount of brownish-black to black limestone
4204	4210	6	Shale (highly calcareous) to limestone (very shaly), medium dark gray, some dark-gray to brownish-black, very silty, dolomitic
4210	4216	6	Shale (highly calcareous and highly dolomitic) to a calcareous dolomite (very shaly), brownish-black to grayish-black, some medium dark to dark-gray, very silty some small amount of white anhydrite
4216	4241	25	Shale (highly calcareous) and some limestone (very shaly), grayish-black, some grayish-black to brownish-black in the lower part, dolomitic, very silty in part; small amount of white anhydrite
4241	4254	13	Limestone (very shaly) to highly calcareous shale, brownish-black to grayish-black, mostly grayish-black in the upper part, slightly dolomitic, mostly limestone in the lower part
4254	4266	12	Limestone, grayish-black to brownish-black, very shaly, dolomitic in part; some medium dark gray, dolomitic shale
4266	4274	8	Limestone, brownish-black to grayish-black, some brownish-black to black in the lower part, very shaly in part, highly dolomitic in part
4274	4280	6	Limestone, grayish-black to black, some grayish-black to brownish-black, shaly, silty, the residue contains a large amount of very dark colloidal material, moderately to highly dolomitic
4280	4323	43	Limestone, brownish-black, some brownish-black to black (shaly), somewhat dolomitic, silty (with a little pyrite); small amount of anhydrite at the bottom
4323	4336	15	Dolomite-anhydrite rock, grayish-black to black, calcareous; some brownish-black to grayish-black limestone at the top

4336	4356	20	Limestone, grayish-black to black, some brownish-black to black in the upper part, somewhat dolomitic, very shaly in the lower part; some light- to medium-gray dolomitic anhydrite
4356	4368	12	Dolomite (calcareous) to limestone (highly dolomitic), grayish-black to black, some brownish-black, somewhat shaly, very silty (some of the silt is anhydrite)
4368	4377	9	Dolomite, dark-gray to grayish-black, highly calcareous, very silty, somewhat shaly; small amount of anhydrite
4377	4420	43	Dolomite (very silty) to shale (dolomitic), grayish-black to black, some brownish-black to black at the bottom, highly calcareous, somewhat pyritic in the lower part

Niagaran Series (?), 926 Feet.

4420	4422	2	Sandstone, white to very light gray, very fine to fine grained, quartzose, dolomitic, slightly pyritic
4422	4441	19	Shale, medium to medium dark gray (with greenish cast) calcareous; siltstone, medium dark to dark-gray, calcareous, shaly
4441	4450	9	Shale, mottled dark greenish gray to medium dark gray and dark-gray to grayish-black (silty, calcareous), highly dolomitic
4450	4456	6	Shale, mostly dark-gray, some medium dark gray, highly dolomitic to dolomite (very shaly), silty, contains many grayish-black limestone spots and streaks
4456	4471	15	Shale, medium to medium dark gray (with greenish cast), highly dolomitic; a large amount of medium dark to dark-gray, somewhat dolomitic shale in the lower part
4471	4476	5	Shale, brownish-black, highly calcareous to black, slightly calcareous shale, some medium dark to dark-gray, highly dolomitic shale
4476	4490	4	Limestone (very shaly) to shale (highly calcareous), grayish-black to black, some dark-gray to grayish-black, silty
4490	4500	20	Limestone (very shaly) to shale (highly calcareous), dark-gray to brownish-black, grayish-black to black, silty in part, dolomitic, trace of anhydrite
4500	4517	17	Shale, medium dark to dark-gray, dolomitic, highly calcareous in part to limestone, dark gray to grayish-black, some black (very shaly), very silty in part
4517	4552	35	Shale (highly calcareous) to limestone (very shaly), grayish-black to black, some brownish-black to black, silty in part
4552	4558	6	Limestone (very silty and shaly) to siltstone and shale (highly calcareous), grayish-black to brownish-black, some grayish-black to black, dolomitic; some white to light gray, vein calcite and dolomite
4558	4583	25	Shale, grayish-black to black, highly calcareous and some limestone, brownish-black, very shaly, very silty; a very large amount of medium dark gray, very shaly dolomite, medium dark to dark-gray in the lower part

4583	4610	27	Shale (highly calcareous) to limestone (very shaly), Grayish-black to black, some dark-gray to brownish-black; some medium dark to dark-gray, very shaly dolomite; small amount of white to light-gray calcite and dolomite, trace of anhydrite
4610	4621	11	Shale, (highly calcareous) to limestone (very shaly and very silty), grayish-black, some grayish-black to black
4621	4644	13	Limestone (very silty and shaly) to shale (highly calcareous), grayish-black to black and some dark-gray in the upper part, dark-gray to grayish-black in the lower part; dolomitic in part; trace of anhydrite
4644	4667	23	Limestone (very silty) to siltstone (highly calcareous), medium dark gray (dolomitic) to brownish-black; some grayish-black to black, highly calcareous shale; some light to medium-gray anhydrite
4667	4671	4	Limestone, brownish-black to grayish-black, some medium dark to dark-gray (dolomitic), very shaly and very silty; trace of anhydrite
4671	4691	20	Limestone (very shaly) to shale (highly calcareous), brownish-black to grayish-black and black; some medium dark to dark-gray, calcareous, silty dolomite with some anhydrite; some medium dark gray, very shaly dolomite
4691	4750	59	Limestone, brownish-black to grayish-black, very shaly with some highly calcareous shale, dolomitic in part; trace of light-gray anhydrite
4750	4784	34	Shale, grayish-black to black; highly calcareous; some brownish-black to grayish-black, very shaly limestone
4784	4802	18	Shale, medium dark to dark-gray, highly calcareous in part and some shaly limestone, very silty, pyritic; some grayish-black to black, calcareous shale
4802	4834	32	Shale, grayish-black to black, highly calcareous with limestone spots, very silty and sandy (very fine) in part, pyritic in part; some medium dark to dark-gray shale, calcareous in part; small amount of light-gray, very fine sandstone, some fine to medium in the lower part
4834	4841	7	Limestone (very silty) to a highly calcareous siltstone, medium dark to dark-gray, some medium dark to dark-gray to olive-gray (fossiliferous); some grayish-black to black, calcareous shale; a very small amount of white calcite.
4841	4883	42	Limestone (very shaly) to shale (highly calcareous), dark-gray to grayish-black, very silty, sandy and pyritic in part; a large amount of medium to medium dark gray, calcareous and dolomitic shale in the upper part
4883	4914	31	Siltstone (highly calcareous) to limestone (very silty and shaly), medium dark to dark-gray; some grayish-black to black, calcareous shale; a large amount of medium dark gray shale, highly calcareous in part
4914	4933	19	Shale, dark-gray to grayish-black, calcareous; some medium dark gray, very silty limestone in the upper part and some medium- to dark-gray shaly limestone in the lower part
4933	4955	22	Limestone, mottled light- and dark-gray, very shaly, highly fossiliferous; a large amount of medium dark to dark-gray shale

4955	4996	41	Shale, medium dark gray; a moderate to large amount of medium- to dark-gray, very highly fossiliferous (ostracods)?, silty limestone, very silty and sandy (very fine) at the bottom
4996	5045	49	Limestone (very silty and shaly) to shale (highly calcareous), dark-gray to grayish-black with light-gray spots, highly fossiliferous; some medium dark gray shale
5045	5088	43	Limestone, grayish-black to brownish-black, very shaly to a highly calcareous shale, very silty at the bottom
5088	5123	35	Shale (highly calcareous) and some limestone (very shaly) dark-gray, some dark-gray to grayish-black
5123	5130	7	Shale, dark-gray to grayish-black, very highly calcareous, silty in part- shale, medium dark gray to dark-gray, calcareous
5130	5174	44	Shale, grayish-black to black, highly calcareous with limestone spots; some medium dark to dark-gray, calcareous shale
5174	5203	29	Limestone, dark-gray to grayish-black, very silty to, calcareous siltstone, shaly in part, highly fossiliferous in part; a moderate to large amount of shale, medium dark to dark-gray and some grayish-black to black, calcareous shale
5203	5213	10	Limestone (very silty) to calcareous siltstone and shale, grayish-black, fossiliferous in part; some medium dark to dark-gray, calcareous shale
5213	5228	15	No sample
5228	5243	15	Shale, dark-gray to grayish-black, highly calcareous limestone; some medium dark to dark-gray, calcareous shale
5243	5254	11	Shale, medium dark to dark gray, very silty, highly calcareous (with some silty, shaly limestone); shale dark gray to grayish-black, calcareous
5254	5272	18	Shale, highly calcareous with some limestone, dark-gray, some grayish-black to black
5272	5281	9	Shale, medium dark to dark-gray, calcareous in part; some very silty and shaly limestone, medium-gray to grayish-black
5281	5322	41	Shale (calcareous in part) to a limestone (very shaly, fossiliferous), medium dark gray, some dark-gray, the limestone is very silty
5322	5339	17	Shale, medium dark gray, some dark-gray, calcareous in part; siltstone, light olive gray, calcareous to a silty limestone, shaly, medium-to dark-gray
5339	5346	7	Siltstone (shaly, calcareous) to limestone (very silty), medium dark to dark-gray (some of the interstitial material is red and brown probably from oxidizing of iron oxides), small amount of light olive gray to medium-gray; a large amount of shale, medium dark gray, some dark-gray
<u>Clinton Formation, 751 Feet.</u>			
5346	5453	107	Shale, dark greenish gray, some medium-gray to greenish-gray, some greenish-black, some dark greenish gray to olive-gray (silty) limestone spots and streaks, the lower half of this interval is mostly medium-gray to greenish-gray and dark greenish gray

5453	5477	24	Shale, dark greenish gray to olive-gray, small amount of olive-gray to dusky yellowish brown, small amount is silty (somewhat sideritic)
5477	5770	293	Shale, dark greenish gray and greenish-gray to dark greenish gray; small amount of olive gray to dark greenish-gray siltstone, sideritic in part; some medium dark gray to black shale and siltstone to shaly and silty limestone at the bottom
5770	5791	21	Siltstone to shale, medium to medium dark gray (with greenish and olive casts), some of the siltstone is slightly sideritic
5791	5811	20	Shale, medium to medium dark gray to dark greenish gray, silty in part; a moderate to large amount of medium-gray to olive-gray (sideritic in part) and dark greenish gray siltstone, sandy (very fine) in part
5811	5824	13	Siltstone, medium-gray to light olive gray, somewhat dolomitic, sideritic in part; some of the siltstone has dusky-brown and very dark red streaks (oxides of iron); a moderate to large amount of shale, medium to medium dark gray (with greenish and olive casts)
5824	5845	21	Shale, medium to medium dark gray, some dark greenish gray to olive-gray, silty in part; siltstone, medium-gray to olive-gray, dolomitic and sideritic in part
5845	5862	17	Siltstone, medium to medium dark gray and olive-gray, some dark greenish gray, somewhat dolomitic, sideritic in part, small amount is vari-colored from iron oxides; a large amount of medium to medium dark gray shale, some medium dark gray to dark greenish gray
5862	5962	100	Shale, medium to medium dark gray (with greenish cast), some medium dark gray to dark greenish gray and olive-gray; some siltstone, medium-gray to olive gray, dolomitic in part, somewhat sideritic in part; small amount of the siltstone and shale is dusky-brown to very dusky red (from iron oxides and siderite?); trace of dusky-red sandstone at the bottom (shaly, iron oxides)
5962	5972	10	Sandstone, grayish-black to black, very shaly (the dark color is probably due to the presence of iron oxides since an occasional piece is blackish-red to very dusky red (by oxidation), very fine grained, an occasional coarse grain (Clinton iron ore horizon)?
5972	5975	3	Siltstone and sandstone (very fine), medium dark to dark-gray, some medium dark to dark greenish gray; some medium- to dark-shale gray shale
5975	5983	8	Shale, medium dark to dark-gray, sandy in part; sandstone (fine) to siltstone, dark greenish gray to medium dark gray to grayish-black, very shaly in part to a black, silty and sandy shale
5983	6003	20	Shale, medium dark to dark-gray; some siltstone, medium-gray to olive-gray
6003	6013	10	Shale, dark-gray, some medium dark gray, silty; siltstone and some fine sandstone, medium- to medium dark gray
6013	6016	3	Siltstone to sandstone (very fine), light olive gray to moderate yellowish brown, some medium to medium yellowish brown, some medium to medium dark gray, sideritic; some medium dark to dark-gray, silty shale
6016	6023	7	Limestone, dark-gray to black, some brownish-black, very shaly; shale, medium dark gray to olive-gray and dark greenish gray

6023	6032	9	Shale, medium dark to dark-gray, some olive-gray; siltstone, olive-gray to medium and medium dark gray, sideritic in part; trace of dusky-red to blackish-red, ferriferous sandstone
6032	6060	28	Shale, medium dark to dark-gray, a large amount of olive-gray in the middle part, some grayish-black at the top; small amount of medium-gray to olive-gray siltstone; trace of very dusky red, ferriferous sandstone
5060	6066	6	Shale, olive-gray to brownish-gray, some medium dark gray
6066	6081	15	Shale, medium dark gray; some olive-gray to medium-gray, somewhat sideritic siltstone; a very small amount of very dusky red, ferriferous shaly sandstone; small amount of dark-gray to grayish-black shaly limestone
6081	6087	6	Shale, medium dark to dark-gray; some siltstone, medium-gray to olive-gray and dark greenish gray
6087	6090	3	Sandstone, grayish-black to black, very shaly, (probably highly sideritic ferriferous since some of it is very dusky-red from oxidation), very fine grained; a large amount of medium to medium dark shale; some siltstone, medium-gray to olive-gray
6090	6095	5	Siltstone to sandstone (very fine), medium to medium dark gray, some medium dark/gray to olive-gray, calcareous; some medium to medium dark gray shale
6097	6100		TOTAL DEPTH