

NOV 10 1946 (C)

Tioga Lumber Co. No. 1(539) Well

Hamilton District, Nicholas County, W. Va.

By West Virginia Gas Corporation, Box 1433, Charleston 25, W. Va.

Located 5.17 Mi. S. of 38° 30' and 2.72Mi. W. of 80° 40' - NW -

Cowen Quadrangle ~~NW~~

Elevation 2460.3' L (ground)

Permit Nic - 63 (revised)

Drilling commenced May 2, 1946; completed July 20, 1946

Acidized with 1500 gallons, July 22, 1946

Gas Well; Volume, before ~~readi~~ acidizing, 112,000 cu. ft.; after acidizing 169,000 cu. ft.

Rock pressure, 330 lbs. in 14 days

Fresh Water, 72'; 1-1/2 bbls. per day; 155', 5 blrs. per hour; 170' hole full 10" casing, 432' 4"; 8-5/8", 1015' (pulled); 7", 2343' 2"; 2" tubing. 2414'

Coal encountered at 90-~~29~~, 195-200, 375-380, 544-551

Section based on samples from 0 to 2423 feet, examined by *Rosell R Flowers*

Top Bottom Thickness

Allegheny Formation, 59, plus, Feet

0	15	15	Sandstone, yellowish-gray to dark yellowish orange, some moderate- to dark-brown, (most of <sup>The</sup> color is due to iron oxides in the cementing material), fine-grained, subrounded, contains a little mica and chlorite
15	27	12	Sandstone, very light to light-gray, fine-grained, sub-angular to subrounded, contains some dark-gray to black shale grains and spots of iron oxide in the upper part
27	41	14	Sandstone, light-gray to light olive gray, some greenish-gray, fine to very fine grained, contains mica, chlorite, siderite, kaolinitic and carbonaceous material in considerable quantity and some medium to coarse quartz grains; some medium dark gray to olive-black, silty shale

41	48	7	Sandstone, white to light-gray, fine to very <del>fine</del> coarse grained, pebbly (with light olive gray, very silty <del>in</del> spots); some coal; a small amount of olive- gray shale
48	53	5	Coal and dark-gray to black shale with "coaly" streaks, 40%; clay-shale, olive-gray, 60%
53	59	6	Sandstone, olive-gray, fine-grained, very highly argillaceous, somewhat micaceous (muscovite); some olive-gray to olive-black shale; small amount of dark-gray to black shale (cavings ?)
<u>Pottsville Formation, 1599 Feet</u>			
59	195	136	Sandstone, very light to light-gray, fine- to medium- grained, subangular to subrounded; at the top, light olive gray, highly argillaceous with a little olive- gray to dark-gray shale; 61-71 argillaceous in part; 71-76, medium- to coarse-grained, some very coarse grains; 76-82, medium- to coarse-grained, some fine grains; 90-113, light-gray with medium-gray streaks containing carbonaceous material, very fine to coarse grained in the upper part and fine to medium-grained with some coarse grains to pebbles in the lower part, somewhat argillaceous; 113-164, light-gray, fine- to medium-grained, somewhat argillaceous, contains some chlorite, carbonaceous material, and a little musco- vite, mostly fine-grained from 120 to 164; 164-190, somewhat sideritic, contains a little chlorite and carbonaceous material; 190 to 195, fine-grained, some very fine grains, sideritic with a moderate amount of chlorite and carbonaceous material, some muscovite (Homewood Sandstone)
195	200	5	Coal (Stockton ?)
200	205	5	Coal and black, carbonaceous shale, 30%; siltstone and shale, olive-gray and medium dark gray to olive- and grayish-black, 70%

205	224	19	Siltstone, olive-gray to medium dark and dark-gray, some olive- and grayish-black (shaly), micaceous, somewhat sideritic
224	227	3	Sandstone (argillaceous) to shale (sandy), light olive gray to olive-gray, very fine grained, highly sideritic in part; some shale, medium dark gray to olive- and grayish-black
227	233	6	Shale (sandy in part) to sandstone (very fine, highly argillaceous), light olive gray to olive-gray
233	237	4	Siltstone and some shale, medium dark to dark-gray
237	254	17	Siltstone, medium dark to dark-gray and some olive-black, shaly, sideritic, micaceous, contains some carbonaceous material; some very fine grained, light olive gray to brownish-gray, sideritic sandstone at the top
254	286	32	Sandstone, very light gray, some light-gray, fine- to medium-grained, mostly medium-grained in the lower part, subangular to subrounded, somewhat sideritic, carbonaceous specks in the upper part and some medium dark to dark-gray shale (very silty) at the top, the bottom is streaked and spotted with dark yellowish brown siderite and dark-gray (micaceous) to black (carbonaceous) shale
286	294	8	Shale, dark-gray to olive-black; some medium- to medium dark gray, very silty shale and some dark to dusky, yellowish brown siderite at the top
294	300	6	Coal and "coaly" shale, 80%; olive-gray, very silty shale, 20%
300	306	6	Siltstone, medium dark gray, micaceous, 85%; coal and black shale, 15%
306	311	5	Siltstone, medium dark to dark-gray (shaly), some moderate yellowish brown (highly sideritic) to olive-black (somewhat sideritic), micaceous

311	339	28	Sandstone, very light gray, some light-gray in the upper part, fine-grained with some medium grains, medium-grained at the top, subangular to subrounded, somewhat sideritic at the top, contains some chlorite and dark-gray to black, carbonaceous, shaly material, some muscovite
339	351	12	Shale, medium dark gray, mostly dark-gray to olive-black in the <del>upper</del> <sup>lower</sup> part; some dark to dusky yellowish brown siderite; some black carbonaceous streaks in the upper part
351	355	4	Shale, black ("Coaly"), some medium- to dark-gray
355	359	4	Sandstone, light-gray to light olive gray, very fine grained, highly sideritic, contains some medium- to dark-gray, very silty, micaceous and carbonaceous streaks
359	371	12	Shale, medium dark to dark-gray, some olive-black (sideritic) to dark yellowish brown (highly sideritic), silty; some black carbonaceous shale at the bottom
371	380	9	Shale, black, "coaly" to coal, 60%; shale and siltstone medium dark gray and olive-gray to olive-black, 40%
380	384	4	Coal to carbonaceous shale, 80%; shale and some siltstone medium dark gray to olive-black, 20%
384	394	10	Siltstone to sandstone (very fine), medium dark gray (with brown specks of siderite) some olive-black (sideritic), highly micaceous
394	418	24	Sandstone, very light gray, very fine to fine-grained, somewhat sideritic, contains a little mica, chloritic and carbonaceous material, a moderate amount of siderite and mica at the top; at the bottom, a large amount of shale to siltstone, medium dark gray to olive-gray and olive-black, somewhat sideritic
418	425	<del>7</del>	Coal and black "coaly" shale, 50%; shale to argillaceous sandstone, olive-gray, 50%
425	431	6	Shale, medium dark gray, some medium-gray, very silty; a small amount of dark-gray to black shale

431	479	48	Sandstone, very light to light-gray, mostly brownish-gray (highly sideritic) from 466 to 471, fine to very fine grained, contains some siderite and carbonaceous material, somewhat micaceous and chloritic
479	507	28	Shale, medium dark gray to dark gray, some olive-gray (sideritic) to dark yellowish brown (highly sideritic) in most of the interval but a large amount at the top; some grayish-black to black carbonaceous shale and a small amount of brownish-gray, sideritic sandstone at the bottom
507	531	24	Siltstone to sandstone (very fine), medium to medium dark gray and olive-gray to black, sideritic, micaceous, some carbonaceous material; some medium- to dark-gray shale at the bottom; some grayish-black to black, carbonaceous shale and some coal at the top and bottom
531	544	13	Shale, medium dark to dark-gray, some medium-gray, silty in part; some light olive gray, very fine grained sandstone; some dark yellowish brown, highly sideritic shale; some olive-gray clay-shale
544	566	22	Shale, medium dark gray to black (carbonaceous), some medium-gray, some olive-gray; some coal
566	603	37	Sandstone, light-gray to medium light gray and light olive gray, very fine grained, fine to very fine grained at the bottom, contains siderite, muscovite, chlorite, and carbonaceous material in considerable amounts
603	613	10	Shale and siltstone, medium dark to dark-gray, a small amount of grayish-black to black (carbonaceous) and dark to dusky yellowish brown (highly sideritic)
613	621	8	Siltstone (olive-gray) closely interbedded with shale (medium dark gray to grayish-black), contains large amounts of muscovite and carbonaceous material, somewhat sideritic
621	630	9	Shale (dark-gray to black) and some siltstone (olive-gray to medium dark gray)

650	638	8	Siltstone to shale, medium dark to dark-gray and olive-black, some grayish-black to black, some medium-gray to olive-gray
638	644	6	Shale and some siltstone, medium dark gray to grayish-black, some black
644	652	8	Shale, dark-gray to black, some medium dark gray; some dark yellowish brown siderite
652	663	11	Shale, dark-gray to grayish black, some medium dark gray
663	674	11	Shale, medium dark to dark-gray, some olive-black, very silty; some grayish-black to black, carbonaceous shale, some olive gray shale
674	709	35	Siltstone (olive-gray) closely interbedded with shale, medium dark gray (silty) to grayish-black, contains mica, siderite, carbonaceous and kaolinitic material in considerable quantity
709	715	6	Shale, grayish-black to black (carbonaceous), some medium to medium dark gray; some medium-gray to olive-gray siltstone
715	730	15	Shale, medium dark to dark-gray; siltstone, medium dark gray to olive-gray with dark-gray to black, shaly carbonaceous streaks
730	737	7	Shale, black, some grayish-black, carbonaceous
737	744	7	Sandstone, (very fine), light olive gray to siltstone, olive-gray to medium dark and dark-gray, micaceous, sideritic, some carbonaceous material; some shale, medium- to dark-gray, grayish-black to black (carbonaceous), dark to dusky yellowish brown (sideritic)
744	753	9	Siltstone to sandstone (very fine), brownish-gray to olive-gray, calcareous and sideritic, contains mica and carbonaceous material; a large amount of shale, medium to medium dark gray, some dark-gray to black
753	761	8	Siltstone, medium dark to dark-gray and olive-black
761	772	11	Shale, olive-gray, silty in part, some of the shale contains abundant siderite sphenulites, 50%; shale and some siltstone, medium-dark to dark-gray, some grayish-black and some olive black

1172	1180	8	Shale, grayish-black to black, some olive-black (sideritic) to dark yellowish brown, shaly siderite
1180	1212	32	Sandstone, very light gray to light olive gray, fine to very fine grained to an olive-gray siltstone (shaly in part) contains spots and streaks of dark yellowish brown siderite; some grayish-black to black (carbonaceous) shale partings; mostly very light to light-gray, fine-medium-grained sandstone from 1201 to 1212
1212	1223	11	Shale, grayish-black to black, silty, carbonaceous
1223	1235	12	Shale, dark-gray to grayish-black, some olive-black (sideritic)
1235	1248	13	Shale, olive-gray, soft, sandy in part, contains a moderate amount of siderite spherulites, highly sideritic in part, 60%; shale, dark-gray to grayish-black, 40%
1248	1266	18	Shale, dark-gray, some grayish-black in the upper part; small amount of light- to medium-gray siltstone
1266	1276	10	Siltstone (sandy and shaly) to shale (silty and sandy), medium-dark to dark-gray to olive-black, some grayish-black, somewhat sideritic
1276	1340	64	Sandstone, very light to light-gray, very light gray to light olive gray in the lower part, very fine to fine-grained, very fine grained to coarse silt at the bottom; some medium to medium dark silty shale at the top; 1294 to 1306, some black, carbonaceous, shaly streaks; 1306 to 1318, some medium dark to grayish-black, silty shale; the sandstone is somewhat sideritic in the middle and lower parts
1340	1364	24	Shale, grayish-black to black, some dark-gray, some olive-black to dusky yellowish brown (highly sideritic)
1364	1372	8	Siltstone to shale, medium- to dark-gray, some grayish-black with black, carbonaceous streaks, sandy
1372	1388	16	Siltstone to shale, medium dark to dark-gray, brownish-black (sideritic) to grayish-black with black, carbonaceous streaks <del>1388</del>
1388	1400	12	Shale, brownish-black (sideritic) and grayish-black to black, silty

1400	1410	10	Shale, black "coaly" with streaks of coal; some medium dark gray to brownish-black, silty shale; shale, olive-gray with abundant siderite spherulites
1410	1428	18	Shale, dark-gray to grayish-black, some olive-black (sideritic) to dark yellowish brown (shaly siderite); some olive-gray shale with abundant siderite spherulites
1428	1448	20	Sandstone, white to very light gray, fine-grained, mostly clear and glassy quartz, subangular to subrounded; a large amount of dark-gray to black shale and some medium-gray and olive-gray to olive-black, silty shale in the upper part; a large amount of medium-gray to greenish-gray (with brown siderite specks); micaceous siltstone in the lower part
1448	1458	10	Shale to siltstone, olive-gray to dark greenish gray, highly sideritic in part (concretions and spherulites); some dark-gray to black shale
1458	1460	2	No sample
1460	1472	12	Siltstone, dark-gray to olive-black (somewhat sideritic) and grayish-black with bands of olive-gray to medium-gray, somewhat sandy, sideritic in part (spherulites and concretions)
1472	1482	10	Shale, dark-gray to grayish-black, silty; a large amount of interbedded siltstone to very fine sandstone, light-to medium-gray, some dark yellowish brown (highly sideritic)
1482	1502	20	Shale, dark-gray to grayish-black with a few siderite concretions
1502	1512	10	Sandstone, very light gray to pinkish-gray, some light-gray, very fine grained; a large amount of dark-gray to grayish-black shale (probably cavings)
1512	1522	10	Shale, medium dark to dark-gray, some olive-gray (partly sideritic) to dark greenish gray
1522	1544	22	Sandstone, light-gray (with medium-gray to olive-gray, very silty and shaly streaks), very fine grained, slightly calcareous, somewhat sideritic in the upper part



1544	1561	17	Sandstone, very light gray (with light-gray silty and shaly streaks), very fine to fine-grained; some grayish-black to black, carbonaceous shale in the upper part; fine-grained with medium dark to dark-gray and some black shale in the lower part
1561	1580	19	Shale, medium dark to dark-gray, some brownish-black (sideritic) to dusky yellowish brown (highly sideritic)
1580	1585	5	Shale (silty) to sandstone (fine, highly argillaceous), light olive gray to olive-gray with abundant siderite spherulites
1585	1595	10	Shale, medium dark to dark-gray, some grayish-black, some brownish-black (sideritic) to dusky yellowish brown siderite; a moderate amount of light olive gray to olive-gray clay-shale, silty and sandy in part, contains sideritic spherulites
1595	1610	15	Siltstone (shaly) to shale, medium to dark-gray; some shale, grayish-black to black and olive-gray
1610	1620	10	Sandstone (fine, shaly) medium-gray to shale (sandy and silty), medium dark to dark-gray, contains some medium to coarse quartz grains
1620	1630	10	Shale to siltstone (shaly), medium dark to dark-gray
1630	1643	13	Shale, medium dark gray to grayish-black, some olive-gray to brownish-black (sideritic), small amount of black (carbonaceous); some medium dark gray siltstone
1643	1645	2	Shale, dark-gray to black, some olive-black to brownish-black (sideritic); a large amount of medium dark to dark-gray siltstone
1645	1658	13	Sandstone, very light gray to yellowish-gray, fine-grained, some medium grains
<u>Mauch Chunk Group, 694 Feet</u>			
1658	1676	18	Clay-shale, medium dark gray to dark greenish gray with brownish-gray to brownish- and olive-black, calcareous, siderite nodules
1676	1681	5	Siltstone and shale (silty, soft), medium dark gray to dark greenish gray, light olive gray to olive-gray (highly calcareous, dolomitic)

1681	1693	12	Siltstone, medium-gray to medium dark gray (shaly); shale, medium dark to dark-gray; small amount of <del>dark</del> <sup>Dark</sup> yellowish brown siderite
1693	1704	11	Shale, medium dark to dark-gray, some grayish-black
1704	1711	7	Sandstone, light- to medium-gray, very fine grained; clay-shale, medium dark gray to dark greenish gray; some shale, medium dark to dark-gray
1711	1745	34	Shale, medium dark to dark-gray, some medium-gray, olive-gray and brownish-gray (sideritic) to dark yellowish brown siderite
1745	1763	18	Siltstone to sandstone (very fine), olive-gray calcareous; a large amount of clay-shale, dark greenish gray to medium dark and dark-gray containing some calcareous and sideritic nodules
1763	1785	22	Clay-shale to shale, grayish-brown to dusky-brown, medium dark gray to dark greenish gray (silty to siltstone), calcareous in part
1785	1814	29	Sandstone (very fine) to siltstone to shale (sandy and silty), medium and medium dark gray to dark greenish-gray, calcareous and somewhat dolomitic in part; some clay-shale, grayish-brown to dusky-brown
1814	1835	21	Sandstone, very light gray, medium-grained, some coarse grains, subangular to subrounded, moderately to highly calcareous
1835	1846	11	Siltstone (shaly) to shale (silty), greenish-gray to dark greenish gray to medium dark gray, sandy; some brownish-gray to olive-black, silty shale
1846	1867	21	Shale (soft) and clay-shale, grayish-brown; siltstone to shale, greenish-gray to dark greenish-gray; some of the shale and siltstone is calcareous
1867	1915	48	Sandstone, greenish-gray, some dark greenish gray, very fine grained, very fine to fine-grained in part, moderately calcareous, contains streaks of biotite and some medium dark gray to dark greenish gray shale in the lower part, highly calcareous to an olive-gray limestone at the bottom (very thin)

1915	1920	5	Shale, dark greenish gray to medium dark gray, some grayish-brown to dusky-brown, soft
1920	1955	35	Clay-shale, some clay, grayish-brown, dusky-brown to very dusky red; some dark greenish gray to medium dark gray shale, small amount of grayish-black to black
1955	1989	34	Shale, grayish-brown to very dusky red, some grayish-brown to brownish-gray, calcareous in part; a moderate to large amount of greenish-gray to medium-gray siltstone and silty shale, moderately calcareous
1989	2001	12	Clay-shale, grayish-brown and some very dusky red, calcareous in part, 40%; shale, dark greenish gray to medium dark and dark-gray, soft, somewhat dolomitic, slightly pyritic, 60%
2001	2016	15	Shale, dark-gray to grayish-black, olive-black (dolomitic) to black
2016-	2026	10	Sandstone, white to light-gray with dark-gray to black, carbonaceous, shaly streaks, fine-grained, calcareous in part
2026-	2040	14	Siltstone to shale, dark greenish gray, brownish-gray to grayish-brown; some shale, dark-gray to grayish-black
2040	2069	29	Sandstone, greenish-gray to dark greenish gray, very fine grained, chloritic, calcareous; some medium dark gray to dark greenish gray shale; a large amount of brownish-gray to grayish- <del>black</del> brown shale in the upper part
2069	2080	11	Clay-shale, grayish-brown
2080	2114	34	Siltstone, greenish-gray, <sup>To Dark Greenish Gray</sup> calcareous in part; shale, grayish-brown to very dusky red, soft; a large amount of very fine grained, very light gray to greenish gray, calcareous sandstone in the lower part
2114	2125	11	Shale, grayish black to black, some brownish-gray, some grayish-brown to grayish-red, soft, silty in part
2125	2137	12	Shale, medium to medium dark gray (silty), some grayish-black to black, some grayish-brown to very dusky red

- 2137 2188 51 Shale and clay-shale, grayish-brown to grayish-red and very dusky red, micaceous and silty in part; a moderate amount of shale, medium dark to dark-gray and dark greenish gray, some grayish-black to black, silty in part
- 2188 2202 14 Sandstone (very fine) medium light gray to siltstone, greenish-gray; some medium dark gray sandstone (very fine) to sandy shale; some shale, medium dark to dark-gray and dark greenish gray; some limestone, olive-gray to dolomite, brownish-black; a large amount of grayish-brown to grayish-red shale
- 2202 2213 11 Clay-shale, grayish-brown; shale, dark greenish gray with black, carbonaceous streaks
- 2213 2218 5 Clay-shale, grayish-brown, some ~~grayish~~ grayish red to very dusky red; some shale, dark greenish gray, dark-gray to black
- 2218 2225 7 Clay-shale, grayish-brown, some brownish-gray, dark greenish gray to medium dark gray
- 2225 2244 19 Shale, medium dark to dark-gray with some dark-gray to brownish-black, fossiliferous limestone spots, soft, very distinctly laminated; at the bottom, some limestone dark-gray to brownish-black with light-gray spots, fossiliferous, very shaly; some grayish-brown to brownish-gray clay-shale (probably mostly cavings)
- 2244 2285 41 Limestone, brownish- and grayish-black with light-gray to medium-gray spots, very shaly, highly fossiliferous; a very large amount of shale (soft) and clay-shale, medium dark to dark gray (distinctly laminated), some grayish-brown, a small amount of dark greenish gray
- 2285 2290 5 Limestone, olive-gray, some light olive gray, oolitic, very sandy; some brownish- to grayish-black, very shaly, highly fossiliferous limestone; a very large amount of soft, distinctly laminated, medium dark to dark-gray shale, some grayish-brown
- 2290 2298 8 Limestone, light olive gray, <sup>To Olive-Gray</sup> very sandy to very light gray, calcareous sandstone (very fine), some greenish-gray, calcareous, shaly sandstone (very fine); a very large amount of shale cavings

2298	2311	13	Sandstone, light- to medium-gray and greenish-gray, very fine grained, highly calcareous, white to light-gray and slightly calcareous in the lower part; a very large amount of shale cavings
2311	2328	17	Siltstone, medium-gray to dark greenish gray with medium dark to dark-gray, shaly streaks and shale
2328	2352	24	Shale, medium dark to dark-gray, soft, distinctly laminated; small amount of white vein calcite <u>Greenbrier Limestone, 171, plus, feet</u>
2352	2365	13	Limestone, grayish-black and some brownish-black with light- to medium-gray spots, very shaly to a highly calcareous and dolomitic, medium dark to dark-gray shale
2365	2375	10	Limestone, olive-gray to brownish-gray, highly oolitic (many of the oolites "break free") to an olive-gray, shaly, fossiliferous limestone to a fossiliferous and calcareous dark greenish gray shale
2375	2384	9	Limestone (shaly) to shale (highly calcareous), dark greenish gray to olive-gray, brownish-gray with greenish-brown streaks
2384	2401	17	Limestone, olive-gray to dark yellowish brown with light-gray spots, and some white, vein calcite; shale, dark greenish gray, non-calcareous (the limestone appears to be recrystallized nodules or chunks in the shale)
2401	2409	8	Limestone, pale yellowish brown to light olive gray with white spots, mostly oolites (some of the oolites "break free"), somewhat sandy
2409	2415	6	Limestone, very pale orange, some light olive gray, <sup>al-</sup> most entirely oolites individually broken apart (Oil show 2401-2415)
2415	2441	6	Limestone, pale yellowish brown to light olive gray, oolitic (many broken free in the upper part; some greenish-gray to olive-gray, shaly limestone)
2421	2423	2	Limestone, light olive gray with light-gray spots; some greenish-gray to olive-gray, shaly limestone

2423

Total depth