

Watts Land Company No. 1 Well

Top.	Bottom.	Thick- ness.	
			<u>Pottsville Formation, 1410 + feet</u>
0	45	45	Sandstone, brown to yellow, coarse
45	62	17	Shale, gray, silty
62	87	25	Sandstone, gray, very fine, micaceous
87	117	30	Siltstone, gray, shaly
117	122	5	Sandstone, nearly white, very fine, 60%; gray shaly siltstone, 40%
122	127	5	Siltstone, gray, shaly, 70%; nearly white, very fine sandstone, 30%
127	132	5	Sandstone, gray, medium-grained, 50%; gray siltstone and silty shale, 50%
132	145	13	Sandstone, light-gray with dark streaks, medium-grained
145	169	24	Shale, dark-gray with a few siderite concretions; a little coarse sandstone, 152-157'
169	189	20	Siltstone, dark-gray, shaly
189	202	13	Shale, dark-gray, with a little coal, 60%; light-gray, very fine sandstone, 40%
202	210	8	Sandstone, light-gray, very fine, with flakes of mica and specks of siderite
210	243	33	Sandstone, light-gray, fine, micaceous
243	278	35	Shale, black, mostly silty
278	342	64	Sandstone, very light gray with brown and green specks; contains mica and chlorite
342	353	11	Siltstone, very dark gray, fine and shaly
353	361	8	Siltstone, light-gray, sandy, 70%; black shale with a little coal, 30%
361	368	7	Siltstone, gray, sandy, 70%; darkgray, silty shale, 30%
368	374	6	Sandstone, nearly white, very fine
374	413	39	Shale, black
413	419	6	Shale, dark-gray
419	461	42	Sandstone, white, fine- to medium-grained, nearly all quartz

Top.	Bottom.	Thick- ness.	
461	466	5	Sandstone, white to gray, fine, 80%; gray shaly siltstone, 20%
466	503	37	Sandstone, white, medium-grained, nearly all quartz
503	539	36	Sandstone, white, coarse, nearly all quartz
539	549	10	Sandstone, gray, very fine, with dark streaks of mica and carbonaceous matter
549	555	6	Shale, black
555	585	30	Sandstone, nearly white, fine- to medium-grained
585	695	110	Sandstone, white, medium- to coarse-grained, nearly all quartz
695	713	18	Sandstone, white, coarse to very coarse
713	727	14	Sandstone, gray, fine
727	739	12	Sandstone, light-gray, coarse
739	743	4	Shale, dark-gray, silty
743	745	2	Sandstone, gray, very fine
745	751	6	Sandstone, light-brown, medium-grained, 70%; dark-gray silty shale, 30%
751	758	7	Sandstone, nearly white, medium-grained
758	769	11	Sandstone, nearly white, medium-grained, 70%; black shale with a little coal, 30%
769	789	20	Sandstone, nearly white, medium-grained; besides quartz, contains mica, chlorite, siderite and white clayey material
789	804	15	Sandstone, white, coarse
804	810	6	Shale, black, highly carbonaceous, 90%; coal, 10%
810	823	13	Shale, dark-gray to black, with siderite concretions
823	833	10	Shale, gray, silty, with siderite spherulites
833	877	44	Sandstone, light-gray, medium- to fine-grained, contains muscovite, chlorite, siderite, and kaolin besides quartz; thin streaks of carbonaceous matter
877	892	15	Sandstone, nearly white, coarse; some dark carbonaceous streaks
892	934	42	Sandstone, light-gray, medium- to coarse-grained; contains mica, chlorite, siderite, and kaolin

Top.	Bottom.	Thick- ness.	
934	955	21	Shale, black; some coal, 948-955'
955	962	7	Shale, dark-gray, silty
962	974	12	Shale and siltstone, gray
974	1013	39	Sandstone, white, medium- to coarse-grained, nearly all quartz
1013	1034	21	Sandstone, white, very coarse, nearly all quartz; a little coal near bottom
1034	1053	19	Siltstone, gray, shaly, micaceous
1053	1059	6	Sandstone, light-brown, fine, 60%; coal and black shale, 40%
1059	1126	67	Sandstone, light-gray to brownish, medium-grained; contains muscovite, biotite, chlorite, siderite, and kaolin; also small amounts of coal
1126	1145	19	Shale and siltstone, gray
1145	1156	11	Shale, dark-gray to black with traces of coal
1156	1166	10	Sandstone, white, medium-grained
1166	1202	36	Sandstone, light-gray, fine
1202	1208	6	Shale, dark-gray to black, with trace of coal
1208	1214	6	Siltstone and shale, gray
1214	1265	51	Sandstone, light-gray, medium-grained; contains mica, chlorite, siderite and kaolin
1265	1281	16	Shale, black, with plant fossils and trace of coal
1281	1290	9	Siltstone, gray
1290	1342	52	Sandstone, nearly white to light-brown, fine-to medium-grained; contains abundant small specks of siderite
1342	1350	8	Sandstone, nearly white, medium-grained, sideritic, 80%; gray shaly siltstone, 20%
1350	1410	60	Sandstone, nearly white, medium- to coarse-grained

Mauch Chunk Group, 1190 feet

1410	1419	9	Siltstone, gray, shaly; contains some siderite
1419	1443	24	Sandstone, gray, fine to very fine, partly shaly
1443	1475	32	Sandstone, nearly white, medium-grained
1475	1490	15	Sandstone, white, coarse
1490	1508	18	Shale, dark-gray
1508	1514	6	Shale, gray, 90%; gray limestone, 10%

Top.	Bottom.	Thick- ness.	
1514	1518	4	Sandstone, nearly white, fine, 50%; gray shale, 50%
1518	1528	10	Sandstone, gray, very fine, 80%; gray shale, 20%
1528	1546	18	Sandstone, white, fine with small amount of gray shale and siltstone
1546	1578	22	Sandstone, white, coarse
1578	1612	34	Shale, dark-gray,
1612	1617	5	Shale, dark-gray, 60%; light-gray, very fine sandstone, 40%
1617	1628	11	Sandstone, white, fine
1628	1633	5	Shale, gray, sandy, soft
1633	1638	5	Sandstone, light-gray, very fine, 60%; gray shale, 30%; coal, 10%
1638	1650	12	Sandstone, nearly white, very fine, with small specks of siderite
1650	1678	28	Shale, gray, soft; small amounts of white sandstone
1678	1707	29	Sandstone, white, medium-grained; also large amount of gray soft shale, probably cavings
1707	1714	7	Shale, gray, laminated, 80%; gray fossiliferous limestone, 20%
1714	1756	42	Limestone, gray to brownish, very fine textured; also large amount of soft gray shale, probably cavings
1756	1762	6	Shale, gray, soft, distinctly laminated
1762	1795	33	Shale, red
1795	1810	15	Shale, gray

The Watts Land Company No. 1 (1047) Well

Oceana District, Wyoming County, W. Va.

By Godfrey L. Cabot, Inc., 900 Union Bldg., Charleston, W. Va.

Located 4.78 mi. S. of 37°45' and 4.13 mi. W. of 81°30' - NE - Pineville
Quadrangle; 3.6 mi. S.E. of Oceana and 2.5 mi. S.W. of Adkins Fork.

Elevation, 1548.25' L.

Permit Wyo.-13.

Drilling commenced June 24, 1942; completed June 8, 1943.

Dry hole.

13 3/8" casing, 220"; 10 1/2", 1542'; 8 5/8", 2612'.

Section based on samples from 1817 to 5926' examined by J.H.C. Martens.

Mauch Chunk Group, 785+ feet

Top	Bottom	Thickness	
1817	1840	23	Shale and siltstone, red
1840	1855	15	Shale, gray, soft, slickensided
1855	1892	37	Shale and siltstone, dark-gray with carbonized and pyritized plant remains
1892	1895	3	Sandstone, white to brown, fine, 50%; gray shale and siltstone, 40%; red shale, 20%
1895	1900	5	No sample
1900	1906	6	Shale, gray and red, 70%; white fine sandstone, 30%
1906	1947	42	Shale, red, partly silty
1947	1957	10	Shale, red and gray, 60%; very fine light gray sandstone, 40%
1957	1987	30	Siltstone, gray to reddish, partly sandy
1987	1998	11	Dolomite, light-brown, very fine textured; also some soft gray shale
1998	2008	10	Shale, red, silty
2008	2014	6	Siltstone, red, shaly, micaceous
2014	2030	16	Shale, gray and green, soft, 60%; gray and green, and reddish siltstone, grading into very fine sandstone, 40%
2030	2042	12	Sandstone, gray to light-green, very fine, silty
2042	2066	24	Shale, gray, silty; a little gray to fossiliferous limestone

Top	Bottom	Thickness	
2086	2090	24	Shale, gray 55%; very fine white sandstone, 25%; light-gray dolomite, 15%; coal, 5%
2090	2117	27	Siltstone and shale, gray and red
2117	2122	5	Dolomite, light-brown, 60%; shale and siltstone of various colors, 40%
2122	2129	7	Shale, gray (perhaps mostly cavings)
2129	2141	12	Sandstone, light-red, very fine
2141	2159	18	Siltstone, red; also much gray shale cavings
2159	2165	6	Shale, gray, soft
2165	2170	5	Shale, gray and red, soft
2170	2191	21	Shale, red, very silty
2191	2198	7	Dolomite, light-green to reddish, 50%; red and gray shale, 50%
2198	2230	32	Siltstone, red; much gray and red shale cavings
2230	2236	6	Dolomite, light-gray to greenish, very fine textured
2236	2245	9	Shale, gray and green
2245	2392	147	Siltstone, gray to dark-gray; varies from coarse and sandy to fine and shaly
2392	2404	12	Shale, very dark gray, silty
2404	2410	6	Limestone, gray to brown, with crinoids and other fossils
2410	2422	12	Siltstone, dark-gray
2422	2463	41	Sandstone, white, fine, nearly all quartz
2463	2474	11	Siltstone and silty shale, dark-gray, calcareous and fossiliferous
2474	2541	67	Limestone, gray to brownish, fossiliferous; much of the limestone is silty and it may be interstratified with some shale and siltstone, which occur in large amount in the samples (no shale or slate is mentioned in record for interval 2474-2642')
2541	2548	7	Limestone, light-gray, very fine textured
2548	2600	52	Shale, gray to greenish, fossiliferous, mostly silty; also some limestone

Greenbrier Limestone, 373 feet

Top	Bottom	Thickness	
2600	2612	12	Limestone, gray to light-gray; also much shale cavings
2612	2642	30	Shale, gray, silty, fossiliferous, 50%; gray to brownish fossiliferous limestone, 50%; most of this shale does not appear to be cavings
2642	2649	7	No samples
2649	2677	28	Limestone, very light brown to light gray and nearly white; a few oolites, 2656-2677'
2677	2746	69	Limestone, gray to light-brown
2746	2762	16	Limestone, gray with abundant oolites or small round objects closely resembling them; oolites are dark and surrounded by lighter calcite containing some fine sand
2762	2862	100	Limestone, light-brown to white
2862	2898	36	Limestone, light-brown to white, oolitic
2898	2906	8	Limestone, light-brown
2906	2948	42	Limestone, light-brown to light-gray, cherty
2948	2951	3	Limestone, light-brown
2951	2957	6	Limestone, light-brown to nearly white, dolomitic; contains a few rounded sand grains
2957	2973	16	Dolomite, very light gray, of sugary appearance; a little white anhydrite, 2957-2963'

Maocrazy Formation, 28 feet

2973	2988	15	Siltstone, red, gray and green
2988	3001	13	Siltstone, red; a few pieces of black, shiny slickensided shale

Poccano Formation, 579 feet

3001	3131	130	No samples
3131	3166	35	Siltstone and silty shale, dark-gray, 60 to 70%; brown to gray very fine sandstone, 40 to 30%
3166	3200	34	Sandstone, light-brown to gray, fine to very fine, 50 to 70%; dark-gray siltstone and silty shale, 50 to 30%; some fragments show clearly that sandstone and shale are interstratified in thin layers

Top	Bottom	Thickness	
3200	3222	22	Sandstone, light-gray, fine, 70%; gray silty and sandy shale, 30%
3222	3261	39	Shale, gray, with a very few pieces of fine gray sandstone
3261	3273	12	Shale, gray, silty, 70%; gray siltstone, grading into very fine sandstone, 30%
3273	3296	23	Siltstone and silty shale, gray
3296	3311	15	Siltstone, gray, sandy
3311	3356	45	Shale, dark-gray, micaceous, mostly silty
3356	3391	35	Shale, dark-gray, silty, 60 to 70%, gray siltstone, 40 to 30%
3391	3454	63	Shale, dark-gray, silty; also small amount of siltstone
3454	3470	16	Shale, dark-gray, silty, 70%; lighter gray siltstone, 30%
3470	3480	10	No sample
3480	3490	10	Shale, dark-gray, silty, 70%; gray siltstone and very fine sandstone, 30%
3490	3510	20	No samples
3510	3518	8	Shale, dark-gray, silty
3518	3553	35	Shale, very dark gray, mostly silty, 80%; lighter gray siltstone, 20%
3553	3555	2	Shale, very dark gray, silty, 80%; white to gray, fine sandstone, 20%; a few of sandstone fragments are highly pyritic
3555	3563	8	Sandstone, nearly white, with a little rust stain, fine
3563	3574	11	Sandstone, light-gray, very fine
	3580		Base of Berea in driller's record
			<u>Devonian Shales, 2346+ feet</u>
3580	3602	22	Recorded as slate and shells
3602	3715	113	Siltstone and silty shale, gray; most samples contain a few fragments of very fine sandstone
3715	3765	50	Siltstone, gray to dark-brown, sandy near top; mostly not shaly
3765	3777	12	Shale, gray, silty, and lighter-gray coarse siltstone

Top	Bottom	Thickness	
3777	3780	3	Siltstone, gray to light-gray, coarse
3780	3791	11	Sandstone, light-gray, very fine, 60%; darker gray shale and siltstone, 40%
3791	4008	217	Shale, gray to dark-gray, very silty, 40%; lighter gray siltstone and very fine sandstone, 60%
4008	4473	465	Siltstone, gray, micaceous, interstratified with smaller amounts of dark-gray, very silty shale
4473	4548	75	Shale, dark-gray, mostly silty, with a few very small spherical pyrite concretions, 60 to 80%; light-gray siltstone, 40 to 20%
4548	4608	60	Shale, dark-gray, mostly silty, 50%; gray to light-gray siltstone, 50%
4608	4618	10	No sample
4618	4635	17	Shale, dark-gray, mostly silty, 50%; gray to light-gray siltstone, 50%
4635	4770	135	Siltstones, gray to nearly white, sandy, 70 to 90%; darker gray shale, 30 to 10%; much of the siltstone is so coarse that it could just as well be called very fine sandstone
4770	4971	201	Shale, gray to dark-gray, mostly silty, 50 to 60%; lighter gray siltstone, 50 to 30%; a few samples may have more siltstone than shale; individual fragments show every graduation between shale and siltstone.
4971	4981	10	Siltstone, gray, with a little shale
4981	5014	33	Shale, dark-gray, 80%; gray siltstone, 20%
5014	5087	73	Shale, very dark gray to black, pyritic
5087	5275	188	Shale, dark-gray to black, 80%; lighter gray siltstone 70%; not sharply separated from rocks above and below; a few samples contain very little siltstone but much of the shale is silty throughout; a few thin veins of dolomite
5275	5610	335	Shale gray to dark-gray, 60 to 80%; gray siltstone, 40 to 20%; a few thin veins of dolomite; some black shale in several samples
5610	5645	35	Siltstone, dark-gray, 80%; dark-gray silty shale, 20%

Top	Bottom	Thickness	
5645	5655	10	Shale, dark-gray, silty, 60%; gray siltstone, 40%
5655	5675	20	Siltstone, dark-gray, 70%; dark-gray silty shale, 30%
5675	5706	31	Shale, dark-gray to black, silty, micaceous
5706	5708	2	Shale, black, shiny, highly carbonaceous, 60%; ordinary dark-gray shale, 40%; many of the black fragments are slickensided and closely resemble anthracite coal (gas pocket 5708')
5708	5926	218	Shale, gray to black
	5993		Total depth