

5/26/49

Susan Kincaid No. 1(1206) Well.

Mountain Cove District, Fayette County, W. Va.

By Godfrey L. Cabot, ^{Inc.} Co., Charleston, W. Va.

Located 4.63 Mi. S. of 38° 10' and 3.1 Mi. W. of 81° 00'

Fayetteville Quadrangle, E. C.

Elevation, 1604.41' L.

Permit Fay. - 54

Drilling commenced May 18, 1946; completed Dec. 18, 1946.

Shot with 30 qts. from 1218-28' to straighten crooked hole. Before shot, gauged 112 M. cu. ft. 15 min. after shot, gauged 315 M cu. ft. 4 days after shot, gauged 158 M cu. ft.

Fresh water 55'

Salt water, 1235', 1 bailer in 15 hours

13" casing, 33'; 10", 410'; 8", 1844', all left in

Based on samples from 0' - 5934'; examined by Russell R. Flowers.

Top	Bottom	Thickness	<u>Pottsville Formation, 1247, plus, feet.</u>
0	30	30	Sand, yellowish-gray, fine- to medium-grained, unconsolidated, some clay and shale, slightly micaceous
30	70	40	Sandstone, very light gray to yellowish-gray, fine- to coarse-grained, subrounded, slightly micaceous, chloritic; most of the quartz grains are cloudy
70	124	54	Sandstone, white to very light-gray, fine - to medium-grained with occasional coarse grains, subangular to subrounded, mostly quartz (clear, glassy), some of the quartz grains show secondary crystal facets, somewhat shaly, stained brown with iron rust (from tools) from 99' to 124'

- 8x07
- 124 130 6 Shale, medium dark ^{gray} to grayish-black, slightly carbonaceous, somewhat silty, 90%; sandstone, very fine to medium-grained and siltstone, brownish-gray to brownish-black, carbonaceous in part, pyritic, calcareous in part, 10%; small amount of dark yellowish brown, sandy, sideritic shale
- 130 138 8 Clay, medium dark gray to dark-gray to dark greenish gray, slightly carbonaceous, pyritic, somewhat sandy, very small amount of limestone
- 138 163 25 Shale, medium-gray to grayish-black, distinctly laminated in part, some dark brownish gray, soft shale; all of the shale is somewhat silty and micaceous, slightly carbonaceous; small amount of siltstone, olive-gray to dark-gray; contains streaks of carbonaceous material micaceous, sideritic; small amount of dark yellowish brown siderite
- 163 172 9 Shale, medium dark gray to grayish-black, silty, somewhat micaceous and carbonaceous, 80%; siltstone, medium-gray to brownish-gray with black streaks, sideritic, micaceous, somewhat carbonaceous, kaolinitic, somewhat pyritic, 20%;
- 172 195 23 Siltstone, medium-to dark-gray, with grayish-black to black highly micaceous, somewhat carbonaceous streaks, kaolinitic, somewhat shaly, sideritic
- 195 216 21 Sandstone, very light to medium-gray with dark-gray streaks, fine-grained, dark streaks are highly micaceous and carbonaceous, kaolinitic, somewhat shaly, grayish-black to black, "coaly" shale, slightly calcareous near top
- 216 252 36 Siltstone to fine sandstone, light-to medium-gray, kaolinitic, slightly micaceous and carbonaceous, interstratified with dark-gray to brownish- and grayish-black to black, sideritic and carbonaceous, silty, highly micaceous shale

- 252 287 35 Shale, dark-gray to brownish- and grayish- black, very silty, somewhat carbonaceous, pyritic in part, micaceous, sideritic in part; some dark yellowish-brown to brownish-black siderite and sideritic shale and siltstone; some light- to medium-gray, kaolinitic, somewhat micaceous and carbonaceous siltstone
- 287 296 9 Siltstone, and some silty shale, medium-gray to dark greenish gray, moderately kaolinitic, somewhat micaceous and slightly carbonaceous, 90%; shale, dark-gray to grayish-black, somewhat carbonaceous, silty, 10%; small amount of dark yellowish-brown, sideritic shale
- 296 317 21 Siltstone, light olive gray to medium- to dark-gray, streaked and spotted with brown, sideritic blotches and spherulites, carbonaceous; some dusky yellowish brown to grayish- and brownish-black, sideritic shale; small amount of calcite
- 317 324 7 Siltstone and shale, medium-gray to brownish-gray to brownish- and grayish-black, slightly to highly carbonaceous, moderately to highly sideritic; interbedded, silty, highly carbonaceous, sideritic, dark-gray to black (with dark-brown spots) sandstone to a fine to medium-grained, highly kaolinitic, somewhat chloritic, yellowish-gray to light-gray, sandstone; small amount of calcite
- 324 328 4 Sandstone, yellowish-gray to light-gray, fine-grained, subrounded, kaolinitic, slightly chloritic, very slightly micaceous, 80%; small amount of calcite; shale, dark-gray to grayish-black, very silty, 20%
- 328 333 5 Shale and siltstone, dark-gray to brownish- and grayish-black, partly carbonaceous, slightly to moderately sideritic to a shaly, silty, partly carbonaceous, sideritic sandstone, medium-^{gray} and brownish-gray to black, 50%; sandstone, yellowish-gray to very light gray, fine- to medium-grained, kaolinitic, somewhat chloritic, subrounded, 50%; moderate amount of calcite

- 333 339 6 Sandstone, very light gray to yellowish-gray, medium- to coarse-grained, kaolinitic, slightly chloritic; some dark-gray to black (carbonaceous) shale; trace of dusky-brown, sideritic shale
- 339 348 9 Sandstone, white to very light gray, subrounded to subangular, fine- to medium-grained, mostly quartz, kaolinitic and chloritic; contains some carbonate and very little muscovite, some of the quartz grains ^{show} secondary crystal facets; small amount of partially carbonaceous shale; small amount of white calcite
- 348 357 9 Sandstone, very light to light-gray, medium-grained, subrounded to angular, kaolinitic and slightly chloritic; small amount of white calcite; some interbedded, dark-gray to black, carbonaceous and micaceous, soft shale; and at bottom, some carbonaceous and micaceous, brown to black sandstone
- 357 383 26 Sandstone, light-gray to yellowish-gray, medium-grained, subrounded, kaolinitic, slightly chloritic, very highly calcareous (cement) at top to slightly calcareous at bottom; some interbedded dusky yellowish brown, sideritic, dark-gray to black, carbonaceous shale near the center; considerable dark to dusky yellowish brown, sideritic shale and some black "coaly" shale; a trace of coal at the bottom
- 383 388 5 Shale, grayish-black to black, highly carbonaceous to "coaly", 80%; shale, dark-gray, silty, micaceous, partly sideritic, 20%; small amount of dusky yellowish brown siderite and sideritic shale
- 388 394 6 Shale, black, very highly carbonaceous to coal; interstratified thin, dark-gray shales that have very highly carbonaceous streaks; trace of pyrite and small amount of sideritic, dark yellowish brown shale (coal 389-392 from driller's log)

- 394 399 5 Shale, dark-gray to grayish-black, micaceous, silty, slightly sideritic to a micaceous, sideritic, dark-brown siltstone and to a streaked medium-gray and light gray, highly micaceous siltstone containing some sideritic, kaolinite, and some carbonaceous material
- 399 408 9 Shale, dark gray to grayish-black, micaceous, silty in part, slightly to moderately sideritic; small amount of dusky yellowish brown to black, highly sideritic shale
- 408 421 13 Siltstone, light- to medium-gray with dark-gray, shaly bands, highly micaceous, somewhat carbonaceous, moderately sideritic; toward the bottom, dark-gray to grayish-black, silty, micaceous, somewhat carbonaceous shale to a grayish-brown to dusky yellowish brown, sideritic shale
- 421 431 10 Shale, dark-gray to grayish-black, silty; some dark brownish gray to dusky yellowish brown, sideritic shale
- 431 461 30 Sandstone, very fine, and siltstone, coarse, light-gray to light olive gray with brown spots and black streaks (micaceous and carbonaceous), highly kaolinitic, slightly to moderately sideritic; interbedded, dark-gray to black, moderately to highly carbonaceous shale toward the bottom; some dark-brown to dusky yellowish brown, sideritic shale
- 461 469 8 Shale, medium-gray to brownish-gray, partly silty; shale, dark gray to black, moderately to highly carbonaceous, interbedded with a very fine to fine-grained sandstone, very light to light-gray, kaolinitic, micaceous; some dark-brown, sideritic shale and siltstone
- 469 526 57 Sandstone, yellowish-gray to light-gray, medium-grained at the top, fine- to medium-grained toward the middle, fine to very fine grained near the bottom and fine- to medium-grained at the bottom, subangular to subrounded, mostly quartz, very slightly micaceous, chloritic, slightly shaly, slightly calcareous at the top

- 526 533 7 Shale, medium-gray to brownish-gray, silty and sandy; shale, medium dark gray to grayish-black, partly carbonaceous, ^{black shale;} small amount of coal and pyrite, ~~black-shale~~; small amount of dark brown, sideritic shale; some medium-grained sandstone, yellowish-gray to light-gray, highly ~~XXXXXXXXXX~~ calcareous and dolomitic
- 533 555 22 Sandstone, white to light-gray, fine-grained, somewhat micaceous (muscovite); considerable interbedded, medium-gray, silty and sandy, very highly sideritic shale (siderite oolites) at top; trace of coal
- 555 565 10 Shale, grayish-black to black, highly carbonaceous to "coaly" shale, 50%; shale, dusky-brown to brownish-black, very highly sideritic, 40%; sandstone, white to light-gray, fine-grained, subangular, somewhat kaolitic, 10%
- 565 640 75 Shale, medium dark gray to grayish-black, very silty; some interbedded dark yellowish brown to brownish black, sideritic shale, slightly calcareous in part
- 640 642 2 No sample
- 642 674 32 Sandstone, light olive gray to greenish-gray to medium light gray, very fine grained, sideritic oolites, very abundant at top; considerable interbedded medium-gray to black, partly micaceous, partly carbonaceous shale, highly sideritic at top (oolites); some dark-brown to brownish-black, highly sideritic shale at bottom
- 674 691 17 Shale, medium-gray to black; shale and siltstone light olive gray to brownish-gray, sandy; small amount of dark yellowish brown, sideritic shale
- 691 706 15 Siltstone and very silty shale, light olive gray to greenish-gray medium- to dark-gray, moderately to highly sideritic in part, highly micaceous in part; some black, carbonaceous shale
- 706 725 19 Sandstone, yellowish-gray to light olive gray, fine to very fine grained, streaked with sideritic and carbonaceous material, micaceous, chloritic, kaolinitic toward the bottom, this sandstone grades into a moderately calcareous, sideritic sandstone with many streaks of highly carbonaceous material; some interbedded, dark-gray to black, partly carbonaceous shale at top

817	839	22	Shale, light olive gray to greenish-gray to brownish-gray, highly sideritic in part (oolites), some carbonaceous streaks; shale, medium-gray to grayish-black, partly silty and micaceous; some light olive gray to medium-gray siltstone; some brownish-gray to moderate-brown, sideritic siltstone and shale
839	847	8	Clay-shale, greenish-gray to light olive gray, brownish-gray to medium-gray, very highly sideritic in part (oolites); some medium dark gray shale; a small amount of black, distinctly laminated, carbonaceous shale
847	860	13	Shale, silty in part, and clay-shale, greenish-gray to light olive gray to brownish-gray, medium light gray to grayish-black, the greenish-gray is highly sideritic in part; small amount of black, highly carbonaceous, distinctly laminated shale to a "coaly" shale
860	888	28	Shale, very silty and siltstone, medium-gray to medium dark gray, contains much mica, some carbonaceous material, moderately sideritic; some interbedded, light- to medium-gray, very silty, very fine sandstone in upper part
888	910	22	Sandstone, very fine, shaly, to coarse siltstone and very silty shale, medium-gray to medium dark gray to brownish-gray, contains much carbonaceous material, some mica and kaolinite, moderately sideritic at top to highly sideritic toward bottom
910	938	28	Sandstone, light olive gray, fine-grained, contains much carbonaceous material, some chlorite and some mica, quartz grains are subangular and have a few secondary crystal facets, slightly calcareous and moderately sideritic
938	955	17	Siltstone and very silty shale, medium- to medium dark gray to brownish-gray, contains much mica, carbonaceous material, and some kaolinite, sideritic, slightly calcareous, some light-gray, fine-grained sandstone (probably cavings)

955	1064	109	Shale, very silty and siltstone, medium-gray to grayish-black, highly micaceous, contains some carbonaceous material and kaolinite, highly sideritic, slightly calcareous at top to slightly dolomitic toward bottom; trace of pyrite; trace of brown siderite
1064	1116	52	Shale, medium dark gray to grayish-black, soft, distinctly laminated, slightly pyritic (finely disseminated throughout the shale), slightly to moderately sideritic, trace of calcite and dolomite
1116	1119	3	Shale, medium-gray to grayish-black; some light- to medium-gray siltstone and silty shale, partly micaceous; small amount of white to light-gray, very fine grained sandstone, trace of pyrite, highly calcareous and dolomitic, sideritic
1119	1125	6	Shale, medium-gray to medium dark gray; siltstone and silty shale, light- to medium-gray, highly micaceous, sideritic, partly calcareous; small amount of brownish-gray clay-shale
1125	1138	13	No sample
1138	1143	5	Sandstone, fine-grained. This sample is too highly stained with iron rust to tell the true nature of the sample
1143	1157	14	Sandstone, white to light-gray, fine- to medium-grained, angular to subangular, most of the quartz grains are clear and glassy, some show secondary crystal facets, very tightly cemented
1157	1162	5	No sample
1162	1191	29	Sandstone, very light gray to yellowish-gray, medium-grained at top, fine- to medium-grained toward the bottom subangular to subrounded, many of the quartz grains have secondary crystal facets; small amount of medium- to dark-gray clay-shale and black, carbonaceous shale (Gas 1174-85', 179 M. cu. ft.)
1191	1198	7	Sandstone, white to yellowish-gray, fine-grained, subangular to subrounded, 50%; clay-shale, medium-gray to greenish-gray, somewhat calcareous, dolomitic and sideritic, 30%; shale, dark-gray to black (carbonaceous), 20%

- 1198 1247 49 Sandstone, light-gray (most of the samples are stained brown by iron rust from tools), fine- to medium-grained at top, very fine to fine-grained in upper part, fine- to medium-grained in the middle and lower parts of interval, ~~X~~subangular, mostly quartz grains that are clear and glassy, some have secondary crystal facets, slightly to moderately dolomitic and slightly calcareous 1202-1211; small amount of dark-gray to black shale
- Mauch Chunk Group, 514 feet
- 1247 1254 7 Siltstone and shale (partly silty), grayish-red to very dusky red to grayish-brown, partly micaceous, 50%; shale and siltstone, brownish-gray to medium-gray to greenish-gray, 50%; the sample as a whole is slightly calcareous and moderately dolomitic
- 1254 1262 8 Clay-shale, very dusky red to grayish-brown and dusky-brown, moderately dolomitic in part; some greenish-gray shale and siltstone, calcareous and dolomitic in part
- 1262 1271 9 Siltstone and shale, very dusky red to grayish-brown and dusky-brown, greenish-gray to brownish-gray, micaceous, moderately dolomitic, slightly calcareous
- 1271 1328 57 Clay-shale and shale, partly silty, grayish-brown to dusky-brown, some grayish-red; at bottom, some interbedded greenish- to brownish-gray siltstone and shale; small amount of medium-gray to black (carbonaceous) clay and small amount of light-gray to light greenish gray at bottom; as a whole the shales and siltstone are slightly calcareous and dolomitic near the bottom to moderately dolomitic and calcareous at the bottom, slightly to moderately calcareous and dolomitic in upper part in small amounts
- 1328 1348 20 Shale and siltstone, brownish-gray to grayish-brown, some grayish-red and very dusky red, the siltstone is highly micaceous; some interbedded medium-gray to dark-gray clay and shale; the shales and siltstones are dolomitic and slightly calcareous

- 1348 1364 16 Shale, very dusky red to grayish-brown and dusky-brown, brownish-gray to greenish-gray, medium-gray to dark-gray, light olive gray to olive-gray, highly dolomitic except for the red and brown shales
- 1364 1395 31 Shale and siltstone, medium to medium dark gray to greenish gray to olive-gray, abundant, small, somewhat rounded, carbonaceous particles (fossils ?) in the upper part; some grayish-brown to grayish-red and very dusky red siltstone and shale at the top, increasing to 50% at bottom; the shales and siltstones are moderately calcareous and dolomitic
- 1395 1452 ⁵₆₇ Siltstone and shale (partly silt^y), grayish-brown to grayish red, some very ^d ^y ~~dusky~~ red; considerable interbedded, medium-gray to dark-gray shale and siltstone toward the bottom; the siltstones are highly micaceous, both the shales and siltstones are moderately dolomitic in part and slightly to moderately calcareous in part
- ~~1452~~ 1457 5 Shale and siltstone, brownish-gray to grayish-brown, some grayish-red, some greenish-gray, some medium-gray to black, small part is moderately dolomitic and calcareous
- 1457 1461 4 Clay-shale, grayish-brown to grayish-red; clay, medium-gray; small amount of brownish-gray siltstone, moderately calcareous, slightly dolomitic
- 1461 1468 7 Shale and siltstone, grayish-brown to grayish-red and brownish-gray; the siltstone is highly micaceous, moderately calcareous and slightly dolomitic, 80%; shale and clay-shale, medium-gray to black, 15%; small amount of greenish-gray shale
- 1468 1482 14 Clay-shale, grayish-brown, silty and sandy in part, moderately calcareous and dolomitic in part; small amount of medium- to dark-gray shale
- 1482 1507 25 Siltstone with some silty shale, grayish-brown and dusky-brown to brownish-gray, highly micaceous, very slightly calcareous and dolomitic; small amount of medium-gray to black gray clay and shale

- 1507 1526 19 Shale and clay-shale, very dusky red, some grayish-brown and grayish-red, moderately dolomitic; some interbedded, brownish-gray and greenish-gray siltstone to very fine sandstone, slightly calcareous and moderately dolomitic in part; small amount of greenish-gray to medium- and dark-gray shale
- 1526 1537 11 Shale, medium-gray to greenish-gray, soft, very silty, with moderate^W to dark^W yellowish brown streaks; shale, grayish-brown to grayish-red, very dusky red, and dark-gray
- 1537 1621 84 Sandstone, white to light-gray, fine-grained, subangular to subrounded, a large amount of the quartz grains are clear and glassy, many of the sand grains are shale particles, slightly calcareous and dolomitic at top; some interbedded shales, grayish-red to grayish-brown, medium- to dark-gray in the upper part of the formation; considerable rust and iron ^C chips
- 1621 1633 12 Shale, grayish-brown with interbedded, greenish-gray at top, and grayish-brown with some interbedded, greenish-gray, brownish-gray and medium-gray in the bottom part, the greenish-gray shale is dolomitic
- 1633 1641 8 Shale, grayish-brown to grayish-red, soft, with considerable greenish-gray to medium-gray, highly dolomitic shale, the bed shales are dolomitic in part
- 1641 1648 7 Shale, grayish-brown, grayish-red, brownish-gray, medium-gray and greenish-gray, light olive gray, moderately calcareous and dolomitic
- 1648 1653 5 Shale, medium dark gray to grayish-black, distinctly ~~lamin~~ laminated, some olive-gray to dark greenish gray, some grayish-brown to grayish-red and brownish-gray; some siltstone and silty shale medium-gray to greenish-gray; some fine-grained white to light-gray sandstone; the shales are slightly calcareous and moderately dolomitic in part

2084	2129	45	<p>Sandstone, greenish-gray to light brownish-gray, very fine to fine-grained, partly micaceous toward the top, 2110-2117 pinkish-gray to light brownish-gray, some beds, subangular to subrounded, slightly oolitic and pinkish-gray in the lower part, slightly shaly and silty, micaceous at the top to high, chertitic and micaceous at the top, 2110-2117 moderately dolomitic, slightly micaceous toward the bottom, slightly calcareous dolomitic at bottom, very highly oolitic at the center</p>
2129	2140	11	<p>Limestone, brownish-gray to brownish-black, crystalline to 5 mm in diameter, the matrix is brownish-gray to black, texture, very fine grained; some very light gray, calcareous dolomite, very shaly and silty</p> <p>small amount of gray limestone; micaceous gray shale</p> <p><u>MacGrady Formation, 30 feet</u></p>
2140	2148	8	<p>Siltstone (coarse) to sandstone (very fine), very dusky red to dusky-brown, somewhat micaceous, red ferruginous carbonaceous, micaceous, and shaly, micaceous inter-cement, slightly dolomitic, 50%; limestone, brownish-gray to dark-gray and black (carbonaceous) highly dolomitic, crystalline texture, very fine grained, 35%; siltstone, greenish-gray, coarse, micaceous, 10%; quartz, milky white to clear and glassy, very coarse</p>
2148	2165	17	<p>Sandstone, very fine grained at top to a coarse siltstone at the bottom, blackish-red to dusky-brown, highly micaceous, very slightly calcareous and very slightly dolomitic, small amount of highly dolomitic limestone at medium-grained at the bottom, highly chertitic, micaceous, top</p>
2165	2170	5	<p>Siltstone, grayish-red to very dusky red, some greenish-gray, micaceous; considerable medium to dark-gray shale at the top to brownish-gray, very sandy in part, fine to very coarse grain increasing toward the bottom, micaceous, black and some grayish-red by shale</p> <p>small amount of limestone</p>
2170	2179	9	<p>Sandstone, very light gray to grayish-red, a large amount of quartz and iron chips, fine-grained, but medium-grained, quartz grains are subangular to subrounded, fine to very coarse grained with some granules, slightly calcareous and dolomitic; some very fine to fine-grained silty, somewhat micaceous, sideritic in part, some dark greenish gray sandstone; small amount of greenish-gray shale</p> <p><u>Pocono Formation, 421 feet.</u></p>
2179	2185	6	<p>Sandstone, grayish-red to light brownish-gray and greenish-gray, fine-grained with some medium and a few coarse grains, angular to subangular</p>

- 3395 3569 174 Siltstone, light- to dark-gray, some greenish-gray, some light olive gray and brownish-gray, contains much mica, kaolinite, some chlorite, dolomitic and sideritic in part; some interbedded, medium- to dark-gray, brownish- and greenish-gray, silty shale; trace of calcite
- 3569 3866 297 Siltstone, light- to dark-gray, some light olive gray to brownish-gray; contains mica, kaolinite; considerable interbedded, medium- to dark-gray, brownish-gray to grayish-black, partly silty shale; very slightly to slightly dolomitic and slightly to moderately sideritic at the top and bottom, dolomitic and highly sideritic near the middle; trace of calcite
- 3866 4043 177 Shale, medium- to dark-gray to brownish-gray, brownish- and grayish-black to black (somewhat carbonaceous), partly silty; considerable interbedded, light- to medium- gray and light olive gray ^{with} some brownish-gray, siltstone containing some carbonaceous streaks, mica, and kaolinite, pyritic in part, slightly dolomitic and moderately sideritic in part
- 4043 4111 68 Shale, grayish-black to black (carbonaceous), medium- to dark-gray, some brownish-gray, partly pyritic with a few scattered pyritic oolites; interbedded, light brownish-gray to brownish-gray and brownish-black, micaceous, somewhat kaolinitic and sideritic siltstone; some light-gray and greenish-gray siltstone; trace of limestone, slightly dolomitic and moderately sideritic in part
- 4111 4250 139 Shale, medium- to dark-gray, partly silty with scattered specks of carbonaceous material, pyritic in part; some grayish-black to black, carbonaceous shale; interbedded siltstone, light- to medium-gray, light olive gray to brownish-gray, some greenish-gray, contains much mica, kaolinite, moderately dolomitic in part at top and bottom, slightly dolomitic near center; trace of limestone at bottom

5619	5661	42	Shale, medium- to dark-gray, some grayish-black to black (carbonaceous), some brownish-gray, contains some pyrite; some interbedded, light olive gray to light-gray with a little brownish-gray and dark yellowish brown (sideritic) siltstone, slightly dolomitic in part
5661	5934	273	Shale, medium- to dark-gray (with carbonaceous streaks), grayish-black to black (carbonaceous); some interbedded siltstone, light- to medium-gray with some light olive gray and dark yellowish brown (sideritic); the siltstones and shales contain some mica and pyrite, the carbonaceous material increases toward the bottom; trace of dolomite (probably in veinlets)
	5934		TOTAL DEPTH

- 4944 5003 59 Siltstone and shale, medium-gray to greenish-gray, a small amount of dark-gray to grayish-black shale, part of the siltstone is moderately dolomitic and slightly calcareous
- 5003 5195 192 Siltstone and shale (mostly silty), light olive gray to medium-gray and brownish-gray, brownish-black and grayish-black to black (carbonaceous), somewhat micaceous, pyritic in part, dolomitic and very slightly calcareous in part
- 5195 5284 89 Shale, brownish- and grayish-black to black, highly carbonaceous, 80% at top to 10% at bottom; light olive gray to medium-gray siltstone ~~and~~ and shale, 20% at top and 90% at bottom
- 5284 5307 23 Shale and siltstone, light olive gray to medium-gray; some dark-gray to black shale
- 5307 5376 69 Shale, medium-gray to dark-gray and olive-gray, some grayish-black to black (carbonaceous) shale; considerable interbedded, light olive gray ~~and~~ to brownish- and medium-gray siltstone; small amount of slightly to moderately dolomitic siltstone; small amount of pyrite disseminated throughout the shale and siltstone
- 5376 5399 23 Shale, dark-gray to black, some medium-gray, silty shale, pyritic in part; some interbedded, light olive gray to medium-gray siltstone
- 5399 5517 118 Shale, grayish-black to black (highly carbonaceous), medium- to dark-gray, some brownish-gray, pyritic in part; some interbedded, medium-gray, and brownish-gray to dark yellowish brown (sideritic) siltstone, the grayish-black to black shale is 60% to 70% of the total at the top to 20% near the middle and 40% at the bottom
- 5517 5619 102 Shale, brownish- and grayish-black to black (highly carbonaceous), medium- to dark-gray, some brownish-gray; some interbedded, light olive gray to medium-gray and brownish-gray, micaceous siltstone; small amount of dark, yellowish brown, sideritic siltstone; the grayish-black to black shales are 60% to 70% of the total at the top to 20% to 30% at the bottom, moderately pyritic