

Operator: Stacy and Cardwell  
 Farm: Alfred Shackelford  
 Well No.: 1  
 Location: Lee County  
           6,700' S. of 36°40') approximate  
           11,750' W. of 83°20')  
 Elevation: 1550'  
 Total Depth: 2780'  
 Drilling Commenced:  
 Well Completed: 1950  
 Result: Dry hole

Samples examined by  
 Allen D. Williamson,  
 U. S. Geological Survey,  
 Lexington, Kentucky  
 March, 1950

A-29-LE

### GEOLOGIC LOG

<u>Depth Interval</u>	<u>Lithology</u>
645-657	Quartzite, light brownish gray (5YR 6/1), very fine-grained; sandstone, light gray (N7), very fine-grained, subangular to subrounded, silty, scattered black mineral; and shale, medium dark gray (N4), fissile, micaceous, slightly silty.
657-666	Siltstone, medium dark gray (N4) to dark gray (N3), micaceous, sandy; some siltstone, grayish red (10R 4/2) micaceous, slightly calcareous.
666-678	Shale, grayish red (5R 4/2) micaceous, silty, some fissile, shiny; and siltstone, medium dark gray, slightly dolomitic, micaceous.
678-689	Like 666-678 with little scattered pyrite (?).
689-703	Siltstone, grayish red, like 678-689; and siltstone, greenish gray (5G 6/1), sandy, scattered black mineral.
703-712	Shale, very dusky red (10R 2/2), fissile, micaceous; and shale, medium dark gray (N4), slightly fissile, micaceous, silty.
712-730	Shale, medium dark gray, like 703-712.
730-742	Siltstone, dark greenish gray (5GY 4/1), sandy to shaly, finely micaceous, scattered black mineral; little quartzite, light olive gray (5Y 6/1), very fine-grained, subrounded, 90% quartzose.
742-752	Siltstone, medium gray (N5) to medium dark gray (N4), some very shaly, fissile, micaceous.
752-763	Like 742-762.
763-777	Shale, medium dark gray (N4) to brownish gray (5YR 4/1), fissile, micaceous.

- 777-784 Siltstone, dark greenish gray (5GY 4/1), sandy, dolomitic; and siltstone, light gray (N7), sandy, with scattered black mineral and abundant green mineral.
- 791-799 Siltstone, grayish red purple (5RP 4/2); and siltstone, medium gray (N5), sandy, abundant black mineral, calcareous.
- 799-805 Like 791-799 with little sandstone.
- 805-821 Siltstone, brownish gray (5YR 4/1), finely micaceous; some fissile.
- 821-835 Like 805-821 with little siltstone, medium dark gray (N4).
- 835-843 Shale, grayish red (10R 4/2) fissile, micaceous.
- 843-853 Like 835-843, but with some calcareous, fossiliferous zones.
- 853-877 Siltstone, medium gray (N5), sandy, quartzose; 30% calcareous, iron ore, bedded.
- 877-884 Like 853-877 with about 50% iron ore as above.
- 884-896 Siltstone, dark greenish gray (5GY 4/1), slightly calcareous.
- 896-912 Shale, medium dark gray (N4), fissile, slightly dolomitic.
- 912-926 No sample.
- 926-936 Shale, medium dark gray (N4), fissile; and sandstone, white (N9) to medium light gray (N6), fine-grained to medium-grained, subrounded, slightly quartzitic, fairly porous, some platy black mineral, 90% quartzose.
- 936-943 No sample.
- 943-947 Sandstone, pale yellowish brown (10YR 6/2) friable, fine-grained, subangular to subrounded, very porous.
- 947-953 Like 943-947 with few coarse, rounded grains.
- 953-961 Shale, medium dark gray (N4), fairly fissile, silty, finely micaceous.
- 961-968 Like 953-961, calcareous, fossiliferous (brachiopod and bryozoan fragments).
- 968-977 Siltstone, medium dark gray (N4), sandy, calcareous, little scattered pyrite (?).

- 977-990 Sandstone, medium gray (N5), very fine-grained, subangular, micaceous, abundant black mineral, calcareous cement, slightly porous, 3/4 quartzose; and little limestone, light brownish gray (5YR 6/1), medium crystalline.
- 990-1000 Sandstone, medium light gray (N6), quartzitic, fine-grained to medium-grained, subrounded to rounded, abundant black mineral, slightly calcareous.
- 1000-1010 Sandstone, light gray (N7), to medium gray (N4), quartzitic, fine-grained to medium-grained, subrounded to rounded, scattered black mineral and abundant dark gray (N3), silty interstitial material, little disseminated pyrite (?).
- 1010-1017 Siltstone, medium dark gray (N4), very sandy, slightly calcareous, micaceous.
- 1017-1023 Sandstone, greenish gray (5G 6/1), fine-grained, subrounded, fairly well sorted, scattered black mineral.
- 1023-1029 Siltstone, medium dark gray (N4), slightly sandy, finely micaceous.
- 1029-1041 Like 1023-1029.
- 1041-1049 Shale, dark gray (N3), fairly fissile, finely micaceous, slightly calcareous.
- 1049-1057 Siltstone, medium dark gray (N4), fine, siliceous.
- 1057-1067 Shale, dark gray (N3), as 1041-1049; and siltstone, as 1049-1057.
- 1067-1074 Like 1057-1067, but siltstone is calcareous.
- 1074-1084 Siltstone, medium dark gray (N4), sandy, calcareous.
- 1084-1095 Sandstone, medium dark gray (N4), very fine-grained, subangular, silty, calcareous, abundant dark gray interstitial material, 60% quartzose.
- OS 1095-1106 Siltstone, dusky red (5R 3/4) to greenish gray (5G 6/1), very calcareous, with few medium, rounded quartz grains.
- 1106-1113 Siltstone, dusky red like 1095-1106, some non-calcareous.
- 1113-1125 Like 1106-1113.
- 1125-1139 Shale, dark greenish gray (5GY 4/1) lumpy, little mica, calcareous, with little dark gray (N3) calcareous shale.

- 1139-1151 Limestone, medium dark gray (N4); and white (N9), mottled, finely crystalline, silty, very fossiliferous, abundant disseminated pyrite (?).
- 1151-1159 Like 1139-1159 but no fossils noted.
- 1159-1169 Limestone, dark gray (N3), finely crystalline, fossiliferous; and siltstone, medium dark gray (N4), very calcareous.
- 1169-1178 Limestone, light gray (N7) to medium dark gray (N4), mottled, finely crystalline to medium crystalline, silty, fossiliferous; and siltstone, like 1159-1169.
- 1178-1186 Like 1169-1178.
- 1186-1197 Siltstone, medium dark gray (N4) to greenish gray (5GY 6/1), calcareous; fossiliferous; and limestone, like 1178-1186.
- 1197-1206 Siltstone, greenish gray (5G 6/1), and grayish red (10R 4/2), both slightly calcareous to very calcareous, fossiliferous; with little limestone, pale red (10R 6/2), medium crystalline, silty.
- 1206-1216 Siltstone, greenish gray and grayish red, like 1197-1206, all calcareous.
- 1216-1225 Limestone, pale red (10R 6/2) to grayish red (10R 4/2), medium crystalline, silty, fossiliferous (brachiopods and bryozoans ?); and siltstone, like 1206-1216.
- 1225-1234 Siltstone, grayish red (10R 4/2) to dusky red (5R 3/4), calcareous, finely micaceous; and limestone, very light gray (N8) to medium light gray (N6), finely crystalline, silty, with little bright green mineral.
- 1234-1242 Limestone, medium light gray (N6) to medium dark gray (N4), finely crystalline, very silty, fossiliferous (bryozoa?).
- 1242-1251 Limestone, like 1234-1242, and siltstone, grayish red (5R 4/2).
- 1251-1261 Like 1242-1251.
- 1261-1275 Limestone, grayish red (5R 4/2) and greenish gray (5GY 6/1), finely crystalline to medium crystalline, silty; with little limestone, medium yellowish brown (10R 5/4).
- 1275-1281 Limestone, light gray (N7) and medium dark gray (N4), mottled, finely crystalline to medium crystalline, fossiliferous; and siltstone, medium dark gray (N4), calcareous.
- 1281-1289 Siltstone, medium dark gray (N4), calcareous; and limestone, medium dark gray (N4), finely crystalline, silty, thin-bedded with little limestone, white (N9), finely crystalline to coarsely crystalline, fossiliferous.

- 1289-1299 Limestone, like 1281-1289.
- 1299-1306 Like 1289-1299.
- 1306-1320 Siltstone, dusky red (5R 3/4), calcareous; siltstone, dark greenish gray (5GY 4/1), calcareous; and limestone, light gray (N7), medium crystalline, very sandy, fossiliferous.
- 1320-1331 Siltstone, dusky red (5R 3/4) to grayish red (5R 4/2); and limestone, white (N9) to medium gray (N5), finely crystalline to medium crystalline, fossiliferous.
- 1331-1341 Siltstone, very dusky red (5R 2/6), calcareous.
- 1341-1350 Siltstone, medium dark gray (N4), very calcareous, with some limestone, white (N9) to medium light gray (N6), medium crystalline, fossiliferous.
- 1350-1360 Like 1341-1350 with little bright green mineral in siltstone.
- 1360-1368 Limestone, medium dark gray (N4) to white (N9) mottled, finely crystalline to medium crystalline, silty, very fossiliferous (brachiopods).
- 1368-1383 Like 1360-1368.
- 1383-1398 Like 1368-1383.
- 1398-1409 Like 1383-1398.
- 1409-1416 Siltstone, dark gray (N3), calcareous; and limestone, very light gray (N8), medium crystalline, fossiliferous (brachiopods and bryozoans).
- 1416-1430 Like 1409-1416.
- 1430-1446 Like 1416-1430.
- 1446-1460 Siltstone, like 1430-1446, with little limestone, like 1409-1416; with some siltstone, medium gray (N5), sandy, slightly calcareous.
- 1455-1463 Limestone, medium gray (N5) to medium dark gray (N4), silty, medium crystalline, fossiliferous (corals?), with dark gray (N3), siltstone partings.
- 1463-1470 Limestone, white (N9) to medium dark gray (N4) mottled, silty, finely crystalline with some coarse crystals, fossiliferous, (brachiopods).
- 1470-1485 Siltstone, dark gray (N3), slightly calcareous.

- 1485-1497 Limestone, white to medium dark gray, as 1463-1470; and sandstone, medium dark gray (N4), very fine-grained, silty, very calcareous.
- 1497-1504 Siltstone, medium dark gray (N4), calcareous, slightly micaceous.
- 1504-1513 Siltstone, dark gray (N3), slightly calcareous, finer than above.
- 1513-1520 Sandstone, medium dark gray (N4), very fine-grained, subangular, poorly sorted, silty, calcareous, cement, fossiliferous, abundant black mineral.
- 1520-1532 Siltstone, medium dark gray (N4), calcareous, slightly sandy,
- 1532-1544 Like 1520-1532.
- 1544-1555 Like 1532-1544 with little shale, dark gray (N3), silty, non-calcareous.
- 1555-1566 Siltstone, and shale, like 1544-1555 with some limestone, medium light gray (N6), fossiliferous.
- 1566-1575 Limestone, very light gray (N8), to medium gray (N5), finely crystalline to medium crystalline, fossiliferous, (bryozoan and brachiopods).
- 1575-1580 Siltstone, medium gray (N5), sandy, calcareous, fossiliferous.
- 1580-1589 No sample.
- 1589-1600 Shale, dark gray (N3), silty, fissile, fairly calcareous.
- 1600-1613 Limestone, medium light gray (N6) to medium dark gray (N4), finely crystalline to medium crystalline, sandy.
- 1613-1624 Siltstone, medium dark gray (N4), calcareous, fossiliferous (brachiopods).
- 1624-1638 Shale, dark gray (N3), fissile, calcareous.
- 1638-1648 Siltstone, medium dark gray (N4), fine, calcareous, interbedded with limestone, medium light gray (N6), medium crystalline, fossiliferous.
- 1648-1658 Siltstone, as 1638-1648.
- 1658-1669 Limestone, light gray (N7) to medium gray (N5), finely crystalline to medium crystalline, very fossiliferous (brachiopods).

- 1669-1682 Limestone, medium gray (N5), like 1658-1669.
- 1682-1692 Limestone, light gray (N7) to medium gray (N5), as 1658-1669; and siltstone, medium dark gray (N4), calcareous.
- 1692-1700 Like 1682-1692, with some limestone, light brownish gray (5YR 6/1), finely crystalline.
- 1700-1712 Limestone, light gray (N7) to medium dark gray (N4), finely crystalline to medium crystalline, silty to thin-bedded, with little limestone, very light gray (N8), finely clastic, friable, with laminae of silty material, fossiliferous (brachiopods).
- 1712-1723 Like 1700-1712 with some siltstone, dark gray (N3), calcareous, and limestone, light brownish gray (5YR 6/1), finely crystalline.
- 1723-1731 Siltstone, like 1712-1723, 50%; and limestone, as 1712-1732, 50%.
- 1731-1744 Limestone, light gray (N7) to medium gray (N5), finely clastic to medium clastic to finely crystalline to medium crystalline, fossiliferous; with some limestone, light brownish gray (5YR 6/1), medium crystalline.
- 1744-1758 Like 1731-1744 with some siltstone, medium dark gray (N4) to dark gray (N3), calcareous.
- 1758-1768 Like 1744-1758.
- 1768-1775 Limestone, very light gray (N8), finely crystalline, with scattered black mineral to medium dark gray (N4), medium crystalline, silty.
- OT 1775-1785 Limestone, light brownish gray (5YR 6/1) to brownish gray (5YR 4/1), finely crystalline to medium crystalline, with siltstone, dark gray (N3), calcareous.
- 1785-1796 Limestone, very light gray (N8) to medium gray (N5), medium crystalline, fossiliferous, silty zones.
- 1796-1807 Like 1785-1796.
- 1807-1818 Limestone, white (N9), very finely crystalline, chalky, with silty nodules; limestone, light brownish gray (5YR 6/1) to brownish gray (5YR 4/1) medium crystalline, fossiliferous; and shale, dark gray (N3), fissile, calcareous.
- 1818-1829 Limestone, very light gray (N8) to light gray (N7), finely crystalline, fossiliferous, and limestone grayish brown (5YR 3/2), medium crystalline, silty, fossiliferous.

- 1829-1842 Like 1818-1829, with some siltstone, dark gray (N3), very calcareous.
- 1842-1853 Like 1829-1842.
- 1853-1862 Like 1842-1853.
- 1862-1870 Limestone, white (N9) to light gray (N7), finely clastic, chalky, with some medium crystals; and limestone, medium dark gray (N4), finely crystalline, silty; some limestone, light brownish gray (5YR 6/1).
- 1870-1880 Limestone, brownish gray (5YR 4/1), medium crystalline, silty, fossiliferous.
- 1880-1890 Like 1870-1880 with limestone, very light gray (N8) to light gray (N7) as 1862-1870.
- 1890-1902 Like 1880-1890.
- 1902-1912 Like 1890-1902 with some shale, dark gray (N3), slightly calcareous.
- 1912-1924 Like 1902-1912.
- 1924-1936 Limestone, brownish gray (5YR 4/1), finely crystalline to medium crystalline, silty; and limestone, white (N9) to very light gray (N8), finely crystalline to medium crystalline, fossiliferous (bryozoa and coral).
- 1936-1945 Like 1924-1936, with limestone, dark gray (N3), finely crystalline, silty, and siltstone, dark gray (N3), calcareous.
- 1945-1957 Limestone, white (N9) to medium light gray (N6), medium crystalline to coarsely crystalline, fossiliferous with medium dark gray (N4), silty zones.
- 1957-1972 Like 1945-1957 and limestone, brownish gray (5YR 4/1) with little shale, grayish black (N2), carbonaceous, fissile.
- 1972-1982 Siltstone, dark gray (N3), calcareous, slightly fissile; and limestone, medium dark gray (N4), finely crystalline, silty.
- 1982-1994 Limestone, white (N9) to medium light gray (N6), finely clastic, chalky to medium crystalline, fossiliferous; and limestone, light brownish gray (5YR 6/1) to brownish gray (5YR 4/1), very finely crystalline to medium crystalline, silty; fossiliferous.



- 1994-2003 Like 1982-1994.
- 2003-2013 Limestone, brownish gray (5YR 4/1) to dark gray (N3), finely crystalline, slightly fossiliferous.
- 2013-2025 Limestone, white (N9), coarsely crystalline, fossiliferous.
- 2025-2038 Limestone, light gray (N7) to light brownish gray (5YR 6/1), medium crystalline, fossiliferous.
- 2038-2056 Limestone, medium dark gray (N4), finely crystalline, slightly silty.
- 2056-2071 Limestone, very light gray (N8), medium crystalline, fossiliferous; and limestone, medium dark gray, like 2038-2056, mottled.
- 2071-2080 Like 2056-2071, with some shale, dark gray (N3), calcareous, carbonaceous.
- 2080-2093 Like 2071-2080.
- 2093-2105 Limestone, light brownish gray (5YR 6/1), medium crystalline, and dark gray (N3), finely crystalline, mottled, fossiliferous.
- 2105-2114 Like 2093-2105.
- 2114-2127 Limestone, light gray (N7) to medium dark gray (N4), finely crystalline to medium crystalline, with some shale, dark gray (N3), calcareous, fossiliferous.
- 2127-2143 Like 2114-2127.
- 2143-2154 Limestone, light gray (N7) to light brownish gray (5YR 6/1), with shale, like 2127-2143.
- 2154-2162 Limestone, very light gray (N8) to medium dark gray (N4), finely crystalline to medium crystalline, fossiliferous; and shale, dark gray (N3), silty, calcareous.
- 2162-2175 Limestone, light gray (N7) to medium light gray (N6), medium crystalline to coarsely crystalline, fossiliferous with little limestone, white (N9), finely clastic, fossiliferous.
- 2175-2191 Like 2162-2175, with some limestone, light brownish gray (5YR 6/1), medium crystalline, with black silty nodules; and little shale, dark gray (N3), calcareous.
- 2191-2201 Limestone, very light gray (N8), finely clastic to medium clastic, very fossiliferous; and limestone, medium light gray (N6) to medium dark gray (N4), medium crystalline, fossiliferous, with silty zones.

- 2201-2213 Limestone, very light gray (N8), finely crystalline to medium crystalline, and medium dark gray (N4), silty, mottled, fossiliferous.
- 2213-2222 Shale, olive gray (5Y 4/1), calcareous, siliceous (?); and siltstone, dark gray (N3), calcareous.
- 2222-2234 Shale, like 2213-2222; siltstone, brownish gray (5YR 4/1); and bentonite, bentonite makes up 1/2 of sample.
- 2234-2245 Limestone, light olive gray (5Y 6/1), very finely crystalline, siliceous.
- 2245-2255 Limestone, brownish gray (5YR 4/1), finely crystalline, silty; and shale, medium dark gray (N4), calcareous.
- 2255-2264 Like 2245-2255.
- 2264-2269 No sample.
- 2269-2282 Limestone, brownish gray (5Yr 4/1), very finely crystalline; with abundant bentonite, and little brownish gray chert.
- 2282-2292 Limestone, light brownish gray (5YR 6/1) to brownish gray (5YR 4/1), finely crystalline to medium crystalline with abundant, bedded chert, as 2269-2282.
- 2292-2306 Limestone, light brownish gray (5YR 6/1), very finely crystalline, some platy (thin-bedded?), slightly fossiliferous.
- 2306-2313 Like 2292-2306.
- 2313-2322 Limestone, brownish gray (5YR 4/1), very finely crystalline, platy.
- 2322-2333 Shale, medium dark gray (N4), silty, calcareous, fairly fissile.
- 2333-2343 Like 2322-2333.
- 2343-2357 Limestone, brownish gray (5YR 4/1), very finely crystalline; and limestone, medium gray (N5), finely crystalline, fossiliferous.
- 2357-2369 Like 2343-2357 with little limestone, light olive gray (5Y 6/1), very finely crystalline, thin-bedded.
- 2369-2378 Limestone, brownish gray, like 2357-2369; and limestone, light olive gray, like 2357-2369.
- 2378-2386 Like 2369-2378, with little limestone, very light gray (N8), finely crystalline.

2386-2404 Like 2378-2386.

2404-2414 Like 2386-2404.

2414-2424 Limestone, brownish gray, like 2404-2414; and limestone, medium dark gray (N4), finely crystalline, slightly silty, fossiliferous.

2424-2436 Like 2114-2424.

2436-2447 Limestone, medium dark gray (N4), like 2424-2436.

2447-2460 Like 2436-2447.

2460-2474 Shale, medium dark gray (N4), silty, lumpy, calcareous.

2474-2490 Limestone, light brownish gray (5YR 6/1) to brownish gray (5YR 4/1), very finely crystalline, platy, some fossiliferous zones.

2490-2503 Like 2474-2490, with little white calcite.

2503-2514 Limestone, brownish gray (5YR 4/1), very finely crystalline; and limestone, medium dark gray (N4), finely crystalline, argillaceous; with little limestone, very light gray (N8), finely crystalline to medium crystalline.

2514-2522 Like 2503-2514.

2522-2532 Shale, medium dark gray, (N4), silty, calcareous, fossiliferous.

2532-2541 Shale, like 2522-2532; and limestone, brownish gray (5YR 4/1), very finely crystalline to finely crystalline.

2541-2555 Limestone, like 2532-2541.

2555-2565 Like 2541-2555; with limestone, light olive gray (5Y 6/1), very finely crystalline, platy; limestone, very light gray (N8), finely crystalline, and shale, medium dark gray (N4), calcareous.

2565-2574 Limestone, medium dark gray (N4), finely crystalline, argillaceous.

2574-2585 Like 2565-2574, with some limestone, brownish gray (5YR 4/1), finely crystalline.

2585-2598 No sample.

2598-2609 Limestone, like 2565-2574 with little limestone, very light gray (N8), finely crystalline.

- 2609-2622 Limestone, brownish gray (5YR 4/1), very finely crystalline to crystalline; and shale, medium dark gray (N4), calcareous, fossiliferous.
- 2622-2636 Limestone, brownish gray, like 2609-2622, fossiliferous.
- 2636-2646 Limestone, light brownish gray (5YR 6/1), very finely crystalline; and limestone, very light gray (N8), finely crystalline to finely clastic.
- 2646-2655 Limestone, light brownish gray (5YR 6/1) to medium dark gray (N4), very finely crystalline, platy; with little limestone, very light gray, like 2646-2655.
- 2655-2668 Like 2646-2655 with little siltstone, dark gray (N3), fine, calcareous.
- 2668-2674 Like 2655-2668.
- 2674-2685 Like 2668-2674.
- 2685-2698 Like 2674-2685.