

OWNER: Camp A. P. Hill
DRILLER: Sydnor Pump & Well Co., Inc.
COUNTY: Caroline

VDMR #1368
WWCR #61
TOTAL DEPTH: 506'

GEOLOGIC LOG

Calvert Formation (0-80')

- 0-10 Sand — yellowish-brown, slightly argillaceous, very-fine- to fine-grained (modal diameter 1/8 mm.), very-well-sorted, angular to subangular; quartz, untwinned and slightly altered feldspar, and traces of magnetite and glauconite; slightly diatomaceous.
- 10-20 Clay — gray, sandy; sand fine-grained, well-sorted, angular; clear quartz and some feldspar; moderately diatomaceous.
- 20-30 Clay — gray, trace of very-fine-sand and silt; moderately diatomaceous.
- 30-40 Sand — gray, with greenish cast, argillaceous; very-fine-grained, well-sorted, angular; quartz, with small amount feldspar and traces of zircon, tourmaline, muscovite and glauconite; trace of diatoms.
- 40-50 As above.
- 50-60 As above — but less argillaceous.
- 60-70 Sand — greenish-gray, very-argillaceous; very-fine-grained, well-sorted, angular; quartz, with small amount of feldspar and traces of glauconite, zircon, and muscovite; very slightly diatomaceous.
- 70-80 Sand — gray, with greenish cast, slightly argillaceous; very-fine-grained, well-sorted, angular; quartz, with small amount of feldspar and traces of glauconite, tourmaline; abundant plates and rounded grains (1/8 - 1/2 mm) of brown and gray phosphorite; very slightly diatomaceous.

Aquia Formation (80-230')

- 80-90 Sand — gray, with greenish cast; very-fine- to coarse-grained, rather poorly sorted, variably rounded (roundness increases as grain size); clear quartz (about 65%), fresh glauconite (about 20%), and blocky, columnar, platy, and rounded grain and shell fragment of gray and yellowish-brown phosphorite (about 15%); most of the coarser grains are phosphorite; traces of muscovite, magnetite, and garnet; presence of feldspar not determined.

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- 90-100 Sand — gray, with greenish cast; very-fine- to coarse-grained, rather poorly sorted, variably rounded (roundness increases as grain size); clear quartz (about 65%), fresh glauconite (about 20%), and blocky, columnar, platy, and rounded grain and shell fragment of gray and yellowish-brown phosphorite (about 15%); most of the coarser grains are phosphorite; traces of muscovite, magnetite, and garnet; presence of feldspar not determined.
- 100-110 Sand — gray, with faint greenish cast; very-fine- to fine-grained, well-sorted, angular; clear quartz (85-90%) and fresh green glauconite (10-15%); small amount muscovite; traces of brown epidote, feldspar, pyrite, zircon, tourmaline, and garnet.
- 110-120 As above.
- 120-130 Sand — dark-gray, silty and slightly argillaceous; very-fine-grained, very-well-sorted, angular; clear quartz with 2-5% green glauconite, small amount of muscovite, and trace of platy, black phosphorite; abundant (about 5%) chalky white shell fragments and a few foraminifera (Robulus, Nonion).
- 130-140 As above.
- 140-150 As above — but with less shell material.
- 150-160 Sand — gray, slightly silty and argillaceous; very-fine-grained, well-sorted, angular; clear quartz, with about 2% each of glauconite and muscovite; chalky white shell fragments (about 5%) and a few foraminifera.
- 160-170 Sand — dark-gray, slightly silty and argillaceous; very-fine- to fine-grained, well-sorted, angular to subangular; quartz (about 60%) and fresh glauconite (about 25%); glauconite is slightly coarser, more poorly sorted than quartz; small amounts muscovite and platy phosphorite, and a few microconcretions of pyrite; chalky white shells and shell fragments, mostly pelecypods but some gastropods (mostly Turritella) constitute about 15% of sediment; a few foraminifera (Robulus).
- 170-180 Sand — dark-gray, slightly silty and argillaceous; very-fine- to fine-grained, well-sorted, angular to subangular; quartz (about 45%) and fresh glauconite (about 25%) small amounts muscovite and platy phosphorite; chalky white shell fragments, mostly pelecypods, but some gastropods (mostly Turritella) and worm tubes constitute about 30% of sediment; a few foraminifera (Robulus).
- 180-190 As above.
- 190-200 As above

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200-210 Sand — dark-gray, moderately silty and argillaceous; very-fine- to fine-grained, well-sorted, angular; quartz (about 55%) and fresh glauconite (about 25%); small amounts muscovite and phosphorite; shell fragments, mostly pelecypods but some gastropods (Turritella) and shark teeth constitute about 20% of sediment.

210-220 As above.

220-230 As above.

Potomac Group (230-490')

230-240 Sand — gray; coarse-grained, fairly well-sorted, subangular to subrounded; white and hyacinth quartz and white and gray K-feldspar; subordinate amount of fine- to medium-grained fresh glauconite (about 5%); a few shell fragments.

240-250 Sand — brownish-gray, argillaceous (brownish clay); very-fine- to very-coarse-grained, poorly sorted, angular to slightly subrounded; slightly arkosic and slightly glauconitic quartz sand (abundant hyacinth quartz); traces of muscovite, pyrite, and platy phosphorite; moderate amount chalky pelecypod shell fragments.

250-260 Clay — reddish-brown (mottled-reddish-brown and greenish-gray), very-sandy; sand fine, poorly-sorted, poorly rounded; small amounts feldspar, glauconite, nodular and platy phosphorite, muscovite, and chert; abundant pelecypod and Turritella shell fragments (15-25%).

260-270 As above.

270-280 As above.

280-290 Clay — reddish-brown (mottled-reddish-brown, greens, and grays), slightly to moderately sandy; sand poorly sorted, contains feldspar, glauconite, muscovite, and a small amount of phosphorite; small amount of pelecypod shell fragments.

290-300 As above — but with less shell.

300-320 No sample.

320-330 Sand — brown, slightly argillaceous, scattered small pebbles; coarse-grained, well-sorted, subangular to subrounded; arkosic (abundant white feldspar); scattered grains of glauconite and trace of garnet; a few pelecypod shell fragments.

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- 330-340 Sand — brownish-gray, argillaceous; poorly sorted, variably rounded; arkosic (abundant white feldspar); scattered grains of glauconite and traces of garnet and muscovite.
- 340-360 No sample.
- 360-370 Sand — brown, moderately argillaceous; fine- to coarse-grained, poorly sorted, variably rounded; arkosic (abundant white feldspar); small amount fine-grained glauconite and traces of muscovite, garnet, and brown epidote.
- 370-380 Sand and Clay — brown, subequal amounts of variegated clay; poorly sorted, variably rounded arkosic and slightly glauconitic sand; small amount pelecypod shell fragments.
- 380-390 As above.
- 390-400 Clay — reddish-brown (mottled reds, greens, browns, grays, yellows); slightly sandy; sand coarse-grained, poorly sorted, and contains feldspar, glauconite, and scattered grains of muscovite and phosphorite; scattered shell fragments.
- 400-410 As above.
- 410-420 Sand — brown, argillaceous; medium- to coarse-grained, fairly well-sorted, subangular to subrounded; arkosic, slightly glauconitic and micaceous (muscovite).
- 420-430 Sand — brown, slightly argillaceous; medium- to coarse-grained, well-sorted, subangular to subrounded; slightly to moderately arkosic; slightly glauconitic.
- 430-440 As above.
- 440-460 No sample.
- 460-470 Sand — brown, slightly argillaceous; medium- to coarse-grained, fairly well-sorted, subangular to subrounded; arkosic; scattered grains of glauconite, muscovite, and magnetite.
- 470-480 No sample.
- 480-490 Sand — brown, slightly argillaceous; medium- to coarse-grained, fairly- well-sorted, subangular to subrounded; arkosic (abundant white microcline and microperthite); scattered grains of glauconite, muscovite, and magnetite.
- 490-506 No sample.

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GEOLOGIC SUMMARY

| | <u>ROCK UNIT</u> | <u>TIME ROCK UNIT</u> |
|---------|-------------------|-----------------------|
| 0-80 | Calvert Formation | Miocene |
| 80-230 | Aquia Formation | Eocene |
| 230-490 | Potomac Group | Lower Cretaceous |
| 490-506 | No sample | |

Virginia Division of Mineral Resources
Robert H. Teifke, Geologist
September 23, 1965