

OWNER: Sydnor Pump and Well Co., Inc.
(Ferry Farms Subdivision, Well # 6)
DRILLER: Sydnor Pump and Well Co., Inc.
COUNTY: Stafford (Falmouth)

W-1419
C-59
TOTAL DEPTH: 420'

GEOLOGIC LOG

COLUMBIA GROUP (0-40')

- 0-10 Clay - orange, very sandy; sand is very fine- to coarse-grained, poorly sorted, subangular to subrounded; small amounts of dull white to yellow, intensely weathered feldspar, magnetite, and undifferentiated "heavy" minerals; scattered particles of earthy hematite, glauconite, and carbonaceous material; a few plant fragments
- 10-20 Sand - orange; medium- to very coarse-grained, well-sorted, subangular to subrounded; arkosic (white to yellowish, intensely decomposed feldspar); abundant subhedral magnetite; scattered grains of muscovite, glauconite, epidote (green), and kyanite, and a few other unidentified "heavy" minerals
- 20-30 As above - but slightly coarser and more arkosic
- 30-40 Sand - orange; very fine- to very coarse-grained, fairly well-sorted (skewed coarse with 75 percent of sand coarser than 1.0 mm), subangular to subrounded; moderately arkosic (white to yellowish, moderately decomposed microperthite); small amount of chert and magnetite, and scattered grains of muscovite, epidote, and staurolite

MATTAPONI FORMATION (40-100')

- 40-50 Sand and Shell - gray-brown; 60-70 percent coarse- to very coarse-grained, chalky pelecypod shell debris; 30-40 percent very fine-grained, well-sorted, angular, slightly glauconitic sand (10-15 percent glauconite); scattered grains of muscovite; magnetite, garnet, and epidote; and a very few foraminifers and ostracods
- 50-60 Sand and Shell - gray-brown; about 60 percent coarse- to very coarse-grained, chalky pelecypod shell debris; about 40 percent fine- to coarse- grained, moderately sorted, subangular to rounded glauconitic sand (50 percent glauconite); traces of magnetite, epidote, phosphorite pyrito-carbonaceous material, and lignite
- 60-70 As above - but sand is more poorly sorted and only slightly glauconitic
- 70-80 Sand - gray; coarse-grained, well-sorted, subrounded to rounded; about 5 percent each of shell and glauconite; traces of phosphorite and epidote

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80-90 Sand and Clay - subequal amounts of green, slightly silty clay, and coarse, rather poorly sorted, subrounded sand; traces of phosphorite and pyrite bearing carbonaceous material; 5-10 percent coarse-pelecypod shell debris

90-100 As above - but with green, buff and reddish-brown clays

PATUXENT FORMATION (100-420')

100-110 Sand and Clay - 70-80 percent very coarse-grained, well-sorted, subrounded sand with scattered grains of yellow-stained moderately decomposed feldspar, and of muscovite, gray phosphorite, and carbonaceous material; 20-30 percent green and red variegated, silty clay; scattered chalky pelecypod shell fragments

110-120 As above - but coarse grained, with an increment of granules (2-4 mm) and a few nodules of earthy hematite

120-130 Sand - brown, moderately argillaceous (brown to reddish clay); very coarse-grained with scattered granules, moderately sorted, subrounded; moderately arkosic (white, relatively fresh feldspar); hyacinth quartz common; small amounts of pyrite, and earthy hematite

130-140 As above - but finer, with mode in coarse sand grade (0.5-1.0 mm)

140-150 Sand and Gravel - brown, slightly argillaceous; 20-30 percent fine gravel (2-6 mm) consisting of quartz and some shell; 70-80 percent medium- to very coarse-grained, rather poorly sorted, subrounded sand; slightly arkosic (white K-feldspar); some hyacinth quartz

150-160 As above

160-170 As above

170-180 Clay - reddish-brown, silty, small amount of arkosic, micaceous (biotite) sand

180-190 As above - but sandier

190-200 Clay - mainly reddish-brown, but with some gray and buff; abundant micaceous (biotite) silt and coarse arkosic sand; small amounts of carbonaceous material, crystalline rock fragments (quartz-microcline-hornblende), and pyrite

200-210 Clay - mainly reddish-brown, but with some gray and buff; abundant micaceous (biotite) silt and coarse arkosic sand; small amounts of carbonaceous material, crystalline rock fragments (quartz-microcline-hornblende), and pyrite

210-220 As above

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- 220-230 Sand - light-brown, argillaceous (brown and white clays); medium-to very coarse-grained, poorly sorted; very arkosic; scattered biotite flakes and pyrite nodules
- 230-240 Clay and Sand - brown, a few pebbles up to 12 mm; clay, variegated white, yellow, reds, browns, orange, and gray; sand poorly sorted, arkosic; some plant fragments
- 240-250 Clay and Sand - reddish-brown, a few small pebbles up to 5 mm; clay, variegated, with reds and browns dominant (hematitic); sand poorly sorted, arkosic
- 250-260 As above
- 260-270 As above - but with traces of glauconite and fine, nodular pyrite
- 270-280 Clay - dominantly reddish-brown subordinately greenish-white, very sandy; sand is poorly sorted, arkosic (white microcline)
- 280-290 As above
- 290-300 As above
- 300-310 Clay - red, moderately sandy, arkosic
- 310-320 Sand and Clay - buff aspect; mottled clay; poorly sorted arkosic sand with small amount of pyrite
- 320-330 As above
- 330-340 As above
- 340-350 Clay and Sand - pale gray, very sandy, arkosic
- 350-360 Clay and Sand - buff; sand is poorly sorted; arkosic
- 360-370 Sand - brown, very argillaceous; poorly sorted, arkosic, very pyritic; much of pyrite occurs in small nodules (2-6 mm) that are intergrowths of pyrite, quartz, and feldspar
- 370-380 Sand and Gravel - buff, very slightly argillaceous; 10-20 percent fine-grained, well-sorted gravel consisting of quartz and a few pyritic nodules; 80-90 percent coarse, poorly sorted, very arkosic sand with traces of garnet and magnetite; scattered plant fragments
- 380-390 Clay - mottled brown, gray, and greenish-gray; very sandy, arkosic; greenish clay contains abundant chloritized biotite; scattered plant fragments
- 390-400 Clay and Sand - reddish-brown clay and poorly sorted, arkosic sand

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400-410 Sand - brown, very argillaceous (brown and grayish-green clays); medium- to very coarse-grained, rather poorly sorted, sub-angular to subrounded; arkosic (white feldspar); small amounts of pyrite, carbonaceous material, nodular earthy hematite, and decomposed biotite

410-420 As above

GEOLOGIC SUMMARY

	<u>Rock Unit</u>	<u>Age</u>
0-40	Columbia Group	post-Miocene
40-100	Mattaponi Formation	Paleocene-Late Cretaceous
100-420	Patuxent Formation	Early Cretaceous

Virginia Division of Mineral Resources
Robert H. Teifke, Geologist
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