

OWNER: A. G. Pinkston Company (Town of Smithfield)
DRILLER: Sydnor Pump & Well Company, Inc.
COUNTY: Isle of Wight (Smithfield)

VDMR: 1232
WWCR: 197
TOTAL DEPTH: 387'

GEOLOGIC LOG

COLUMBIA GROUP (0-20')

- 0-10 Sand — brownish-yellow, argillaceous, 10% granule gravel; medium- to very-coarse-grained, poorly-sorted, subangular to subrounded; some smoky and purplish quartz; traces of magnetite and garnet; clay fraction dominantly brownish-yellow, limonitic, with subordinate amount being light-gray and slightly sandy; feldspathic
- 10-20 Clay — brownish-yellow, mottled-light-gray and greenish-gray; sandy; sand poorly-sorted, subrounded; a few grains of glauconite; ferruginous, feldspathic

YORKTOWN FORMATION (20-220')

- 20-27 Shells — reddish-brown (iron-stained); consists essentially of abraded pelecypod shell fragments, up to about 8 mm, with some echinoid spines and a few bryozoans; many fragments well-rounded; small amount of poorly-sorted, subangular-to-subrounded quartz sand with a few grains of glauconite and fragments of orange-brown coquina
- 27-46 "
- 46-50 "
- 50-60 Sand < Shells — gray; slightly argillaceous and silty; sand fine- to medium-grained, fairly well-sorted, generally subangular to slightly subrounded with a conspicuous number of well-rounded quartz grains; very small amount fine-grained glauconite; traces of muscovite and garnet; abundant plates and grains of black, chitino-phosphatic material; shells and shell fragments range from silt-size to 7-8 mm; assemblage consists primarily of pelecypods but also contains several types of gastropods and bryozoans, abundant echinoid spines, some worm tubes and scaphopods, and a moderately-abundant foraminiferal assemblage dominated by Quinqueloculina

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- 60-70 Clay — gray; very sandy and fossiliferous; sand fine- to medium-grained, fairly well-sorted, subrounded; predominately quartz (much of which is iron-stained); abundant plates and grains of chitino-phosphatic material; scattered grains of glauconite and earthy vivianite; trace of garnet; shell fragments abraded and iron-stained; pelecypods and a few echinoid spines, gastropods, bryozoans, scaphopods, and foraminifera
- 70-80 Clay — gray; very sandy and fossiliferous; sand poorly-sorted, subangular to subrounded; much of quartz is tinted green; slightly glauconitic; small amount of phosphate; traces of garnet, vivianite, muscovite, and aragonite; abundant, coarse pelecypod shell fragments, a few gastropods and foraminifera
- 80-90 "
- 90-100 "
- 100-110 Clay — greenish-gray; very sandy; fossiliferous; sand fine- to medium-grained, well-sorted, subangular; predominantly quartz, (much of which is tinted green); small amount of glauconite; some pyrite, gypsum, phosphorite, and acicular aragonite; abundant pelecypod shell fragments; a few gastropods, echinoid spines, and foraminifera
- 110-120 "
- 120-130 "
- 130-140 "
- 140-150 "
- 150-160 "
- 160-170 "
- 170-180 "
- 180-190 Clay — gray; slightly sandy; sand fine-grained, well-sorted, angular to subangular; small amounts of glauconite, gypsum, and fine-grained pyrite; trace of aragonite; scattered grains and plates of phosphorite; moderate amount of shell fragments, mostly pelecypods; a few echinoid spines, gastropods, and foraminifera

- 190-200 Clay — gray, slightly silty and sandy; sand poorly-sorted; scattered grains of phosphorite, fine-grained pyrite, and glauconite; trace of gypsum; small amount of shell material including pelecypod fragments and echinoid spines; a few foraminifera (Nonion) and ostracods
- 200-210 "
- 210-220 Clay — dark-greenish-to brownish-gray; slightly sandy; sand fine-grained fairly well-sorted, subangular; scattered grains of pyrite and phosphorite; traces of aragonite and glauconite; a few, large pelecypod shell fragments; a few foraminifera (including Nonion)

CALVERT FORMATION (220-250')

- 220-230 Clay — greenish-gray; slightly sandy; sand fine-grained in general, but rather poorly-sorted; small amounts phosphorite, glauconite, pyrite, and gypsum; a few molluscan shell fragments; some foraminifera (Siphogenerina abundant, Uvigerina, Nonion)
- 230-240 Clay — dark-greenish-gray; moderately sandy; sand poorly-sorted, subangular to subrounded; pyritic; moderately glauconitic; abundant, rounded, sand-size aggregates of pale, bluish-green glauconite and very-fine-grained pyrite crystals with subordinate amounts of very-fine-grained euhedral calcite; most of glauconite occurs in these aggregates, but fine-grained pyrite is much more abundant in the clay as a whole; small amount gypsum; abundant, black phosphorite; trace of acicular aragonite; dolomitic sandstone common; a few chalky shell fragments and phosphatic fish teeth; some foraminifera, mostly Siphogenerina
- 240-250 " but sandier, more phosphatic, and with a larger and more varied suite of foraminifera

NANJEMOY OR MATTAPONI FORMATION (250-260')

- 250-260 Sand — grayish-green; very argillaceous; fine- to medium-grained, well-sorted, subrounded; glauconite occurs in a number of oxidation states (black, brown, olive, and pale-bluish-green pellets) and comprises about 75% of sand fraction; subrounded quartz, some stained brown and green comprises about 25%; abundant, very-fine-grained pyrite - some of it associated with pale-green glauconite; moderately-abundant pellets and plates of phosphorite; a few aragonite needles; scattered shell fragments, echinoid spines, and phosphatic fish teeth; moderately-abundant foraminifera

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MATTAPONI FORMATION (260-320')

260-270 Sand — black, with greenish cast; slightly argillaceous; medium- to coarse-grained, fairly well-sorted; dark-green to black pellets of glauconite (about 95% of sand fraction); minor quartz, very-fine-grained pyrite, and phosphorite; trace of aragonite; a few foraminifera pelecypod fragments, and worm tubes

270-280 Sand — dark-gray, with greenish cast; moderately argillaceous (brownish-gray clay); fine- to medium-grained, well sorted; glauconite (90-95% of sand fraction); poorly-sorted quartz (5-10% of sand fraction); small amounts of pyrite and phosphorite; a few pelecypod shell fragments and foraminifera

280-290 "

290-300 "

300-310 No sample

310-320 Sand — grayish-green; slightly argillaceous; medium- to coarse-grained, well-sorted; dark-green to black pellets of glauconite (about 95% of sand fraction); small amounts of stained quartz and phosphorite; a few shell fragments; very few foraminifera

PATUXENT FORMATION (320-380')

320-330 Sand — gray ("salt-and-pepper"); slightly argillaceous; fine- to very-coarse-grained, rather poorly-sorted; dark-green to black pellets of medium- to coarse-grained, well-sorted glauconite (50% of sand fraction); fine- to very-coarse-grained, poorly sorted, angular-to-subrounded quartz (50% of sand fraction); a small amount of subrounded- to-rounded granules and small (greenish) pebbles (up to 10 mm) of quartz and phosphorite; small amount fresh, gray microcline; trace of garnet; a few large lumps of this sand are firmly cemented by iron-stained carbonate; a few abraded pelecypod shell fragments and fish teeth

330-340 " but with a decrease in glauconite relative to quartz (glauconite — 30 to 35% quartz — 65 to 70%), and with no areas of carbonate cementation; feldspar common

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- 340-350 Sand — gray ("salt-and-pepper"); very slightly argillaceous; fine- to very-coarse-grained, rather poorly-sorted; fresh, black, medium-grained glauconite (about 25% of sand fraction); fine- to very-coarse-grained, poorly-sorted, angular-to-subrounded quartz (75% of sand fraction); small amount of subangular-to-rounded quartz granules; minor phosphorite (sand-size grains); trace of muscovite; a few abraded shell fragments feldspar common

- 350-357 Sand — gray; very slightly argillaceous; pebbly; medium- to very-coarse-grained, poorly-sorted, subangular to subrounded; gravel (about 30% of the sample) consists of well-sorted (2-8 mm), subrounded pebbles of quartz; sand consists of fresh, black, medium- to very-coarse-grained, poorly-sorted, subangular-to-subrounded quartz; arkosic; a few abraded shell fragments

- 357-360 No sample

- 360-370 Sand — gray, with violet cast; trace of clay; a few small pebbles; very-fine- to very-coarse-grained, very poorly-sorted, subangular to subrounded; slightly glauconitic (3-5%); slightly arkosic (fresh, gray, and white feldspar); sand predominantly clear quartz, but many grains have a violet cast; traces of muscovite, phosphorite, and pink garnet; trace of shell fragments

- 370-380 Clay — greenish-gray; moderately coherent; sandy; sand poorly-sorted and glauconitic

- 380-387 No sample

GEOLOGIC SUMMARY

	<u>ROCK UNIT</u>	<u>AGE</u>
0-20'	Columbia Group	Quaternary
20-220'	Yorktown Formation	Late Miocene
220-250'	Calvert Formation	Middle Miocene
250-260'	Nanjemoy or Mattaponi Formation	Middle Eocene or Paleocene
260-320'	Mattaponi Formation	Paleocene
320-380'	Patuxent Formation	Early Cretaceous
380-387'	No sample	—

Virginia Division of Mineral Resources
 Robert H. Teifke, Geologist
 February 11, 1965 (Revised 4/29/68)