OWNER: W. Beazley (Laurel Park Subd)
DRILLER: Douglas & Dickinson, Inc. (W. Keeve)
COUNTY: Essex (Tappahannock)

VDMR - 1853
WWCR - 144
TOTAL DEPTH - 461'

GEOLOGIC LOG

Depth in Feet

ST. MARY'S FORMATION (0-84)

0 - 10	Sand —	brown, silty and clayey, trace of fine-grained gravel; fine- to coarse-grained, poorly sorted, variably rounded; feldspar present; a few plant fragments.
10 - 21	Sand —	grayish-brown, traces of silt and clay, 5-10% granule gravel; medium - to very coarse-grained, moderately sorted, sub-rounded; slightly feldspathic, traces of glauconite and phosphorite.
21 - 31		"
31 - 42		"
42 - 52	Sand —	brownish-gray, silty and clayey; very fine- to coarse-grained, poorly sorted, variably rounded; slightly feldspathic, trace of glauconite; trace of shell fragments.
52 - 62		"
62 - 73		" abundant pelecypod shell fragments.
73 - 84		" "

CALVERT FORMATION (84-115)

84 - 94	Clay —	greenish-gray, moderately sandy; feldspar present; trace of glauconite; a few plant fragments.
94 - 105		" locally light-gray and orange.
105 - 115	Sand —	gray, moderately clayey to clayey, small amount of fine-grained gravel; very fine- to coarse-grained, rather poorly sorted, variably rounded; traces of feldspar, glauconite and phosphorite; about 10% pelecypod shell debris, a few sponge spicules, plant fragments, and bone fragments.

NANJEMOY FORMATION (115-272)

115 - 126 Sand — gray, with brownish-green cast, moderately clayey, a very few rounded pebbles and phosphate nodules; medium- to very coarse-grained, moderately sorted, angular to rounded (coarest grains are very well-rounded); very slightly glauconitic; trace of garnet; abundant fragments of glauconitic, pyritic, and fossiliferous white limestone; fossil assemblage includes pelecypod fragments, gastropod casts (some phosphatic), sponge spicules, echinoid spines, worm tubes, bone fragments, plant fragments, and a very few foraminifers.

126 - 136 Sand — gray slightly clayey, a few small pebbles; fine- to coarse-grained, moderately sorted, subangular to subrounded; slightly glauconitic, traces of feldspar, phosphorite, garnet and pyrite; small amounts of limestone and shell fragments; a few plant fragments.

136 - 147 "

147 - 157 Sand — brownish-gray, slightly clayey, a few small pebbles; medium-grained, fairly well-sorted, subrounded; 5% fresh glauconite; traces of feldspar and platey phosphorite (bone fragments ?); 5% coarse pelecypod shell fragments, and a few foraminifers, bryozoans, and echinoid spines.

157 - 168 " about 15% fresh glauconite.

168 - 178 Sand — gray, slightly to moderately silty and clayey, trace of rounded gravel (up to 10 mm); fine- to very coarse-grained, poorly sorted, variably rounded; about 10% fine- to medium-grained, fresh glauconite; traces of garnet and muscovite; a few pelecypod fragments, foraminifers, and ostracods.

178 - 188 " dark greenish-gray, 20-30% fine- to medium-grained glauconite; moderately micaceous.

188 - 199 "

199 - 210 "

210 - 220 "

220 - 231 "

231 - 241 Clay — gray, with greenish cast, very sandy; sand is medium-grained fresh glauconite with subordinate rounded quartz; moderately micaceous; traces of pyrite and shells.

241 - 252 "

MARLBORO CLAY MEMBER (252 - 272)

252 - 262 Clay — pink, locally light-gray, variably sandy; sand is predominantly glauconite.

262 - 272 "

AQUIA FORMATION (272 - 357)

272 - 282 Sand — dark gray, slightly clayey; medium- to coarse-grained, well-sorted; 50% fresh to slightly-oxidized glauconite, 50% medium- to coarse-grained, subrounded to rounded, clear to yellow-tinted quartz; a few shell fragments and a few chips of glauconite-bearing limestone.

282 - 294 "

294 - 304 Sand — gray, speckled, very slightly clayey; medium- to coarse-grained, well sorted (skewed fine); 40% fresh glauconite, 60% subrounded quartz; trace of shell fragments.

304 - 315 "

315 - 325 " moderately silty and clayey; brown and light-green glauconite common.

325 - 336 "

336 - 346 Sand — gray, speckled, slightly to moderately clayey; medium- to coarse-grained, fairly well-sorted; 50% glauconite and goethite after glauconite; 50% subrounded to rounded, clear to deeply-stained (yellow and brown) quartz; a few shell fragments, bone fragments, and echinoid spines; abundant small foraminifers, and a few Robulus, Dentalina, Nodosoria.

346 - 357 "

POTOMAC GROUP (357 - 461)

357 - 367 Sand — brownish-gray, slightly clayey, a few granules and very small pebbles; medium- to very coarse-grained, fairly well-sorted (skewed coarse), subrounded; about 10% medium-grained glauconite; moderately feldspathic; garnet common.

367 - 378 " abundant greenish-brown clay.

378 - 388 Sand — brownish-gray, very clayey, a few small pebbles; very fine- to medium-grained, well-sorted, angular to subangular; 5-10% glauconite; traces of garnet and muscovite; feldspar present.

388 - 397 "

397 - 407	Sand —	gray, clayey; medium- to coarse-grained, fairly well-sorted, subangular to subrounded; feldspar present; small amounts of glauconite and muscovite.
407 - 417		"
417 - 427	Sand —	gray, traces of clay and very fine-grained gravel; coarse- to very coarse-grained, well-sorted, subrounded to rounded; moderately feldspathic; traces of garnet and rock fragments.
427 - 437*	Shell —	brownish-gray, slightly to moderately clayey, sandy; abundant glauconitic sand and sandy (glauconitic) limestone; pelecypod fragments, with some bryozoans and foraminifers.
437 - 444*		"
444 - 454	Sand —	gray, traces of clay and very fine-grained gravel; coarse- to very coarse-grained, well-sorted, subrounded to rounded; feldspathic; traces of glauconite and garnet.
454 - 459		"
459 - 461	Clay —	greenish-gray, mottled brown and yellow, silty, variably sandy, a few small pebbles; slightly glauconitic.

* Eocene samples; sample intervals mislabeled during drilling.

GEOLOGIC SUMMARY

	Rock Unit	Age
0 - 84	St. Mary's Formation	Miocene
84 - 115	Calvert Formation	Miocene
115 - 272	Nanjemoy Formation	Eocene
	(252-272 Marlboro Clay Member)	Eocene
272- 357	Aquia Formation	Eocene
357 - 461	Potomac Group	Early Cretaceous

Virginia Division of Mineral Resources
Robert H. Teifke - Geologist
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