

INTERVAL SHEET

WWCR 149

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VDMR Well No.: Well No. 1393

Date 10/18/65

Sample Interval: from 0 to 669

PROP: Town of Montross

Total depth 702

COMP: Douglas & Dickinson, Inc.

Oil  Gas  Water  Exploratory

COUNTY: Westmoreland (Montross)

Cuttings  Core  Other

VDMR Well No: W-1393

From-To	From-To	From-To	From-To	From-To
-	-	0 - 10	319 - 329	638 - 648
-	-	10 - 21	329 - 340	648 - 659
-	-	21 - 32	340 - 350	659 - 669
-	-	32 - 43	350 - 361	669 - 702 No Sample
-	-	43 - 53	361 - 371	-
-	-	53 - 63.9	371 - 383	-
-	-	63.9 - 73	383 - 393	-
-	-	73 - 86.2	393 - 404	-
-	-	86.2 - 96.2	404 - 415	-
-	-	96.2 - 106	415 - 425	-
-	-	106 - 116	425 - 435	-
-	-	116 - 127	435 - 446	-
-	-	127 - 137	446 - 457	-
-	-	137 - 148	457 - 468	-
-	-	148 - 158	468 - 480	-
-	-	158 - 167	480 - 490	-
-	-	167 - 179	490 - 501	-
-	-	179 - 190	501 - 511	-
-	-	190 - 200	511 - 522	-
-	-	200 - 211	522 - 533	-
-	-	211 - 221	533 - 543	-
-	-	221 - 232	543 - 554	-
-	-	232 - 242	554 - 564	-
-	-	242 - 256	564 - 575	-
-	-	256 - 266	575 - 585	-
-	-	266 - 277	585 - 596	-
-	-	277 - 287	596 - 606	-
-	-	287 - 298	606 - 617	-
-	-	298 - 308	617 - 627	-
-	-	308 - 319	627 - 638	-

OWNER: Town of Montross  
DRILLER: Douglas and Dickinson, Inc.  
COUNTY: Westmoreland (Montross)

VDMR: 1393  
WWCR: 149  
TOTAL DEPTH: 702'

GEOLOGIC LOG

COLUMBIA GROUP (0-53')

- 0-10 Sand - brown, argillaceous, medium- to very-coarse-grained, moderately sorted, subangular to subrounded; slightly glauconitic and arkosic; small amounts of magnetite, muscovite, and rounded grains of goethite-limonite
- 10-21 Sand and Gravel - orange-brown, slightly argillaceous; gravel (60%) 2-20 mm. in diameter, rounded, and comprised of quartz, lumps of sand-free clay, and ferricrete; sand (40%) coarse- to very-coarse-grained, well-sorted, subrounded to rounded; scattered grains of glauconite and dull white, decomposed feldspar
- 21-32 Sand - orange-brown, clear, medium- to coarse-grained, well-sorted, subrounded; scattered grains of glauconite, and dull white, decomposed feldspar; traces of magnetite and brown epidote
- 32-43 Sand - orange-brown, slightly silty, a few small pebbles and clay balls, medium- to very-coarse-grained, moderately sorted, subrounded to rounded; small amount of dull white, decomposed feldspar; small amount of ferricrete; traces of glauconite and brown epidote
- 43-53 " more poorly-sorted and more pebbly

CALVERT FORMATION (53-232')

- 53-63.9 Sand - gray, argillaceous (gray clay binder); very-fine-grained sand and coarse-grained silt (1/32-1/8 mm), well-sorted, angular; quartz and feldspar; slightly glauconitic; traces of epidote, zircon, and muscovite; locally limonitic
- 63.9-73 " "
- 73-86.2 Clay - gray, with greenish cast, very sandy; sand very fine-grained, well-sorted, angular; microcline, glauconite, epidote, chlorite, and zircon present in small amounts

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- 86.2-96.2 Sandstone - gray, calcitic and indurated in large part, coarse-grained silt and very fine-grained sand, well-sorted, angular; quartz, with small amounts glauconite, carbonophosphorite, epidote, and tourmaline
- 96.2-106 " with a few scattered diatoms in the unindurated gray sand lithology
- 106-116 Clay - gray, sand-free to slightly sandy; sand fine-grained, well-sorted; small amounts glauconite, tourmaline, zircon, and epidote; locally yellowish-brown, limonitic, a few scattered diatoms
- 116-127 Sand and Clay - greenish-gray; 50% gray clay; 50% very fine-grained, well sorted, angular sand; traces of phosphorite, magnetite, and acicular aragonite; a few scattered chalky shell fragments and diatoms
- 127-137 Sand - greenish-gray, very argillaceous; very fine-grained, well-sorted, angular, some phosphorite; slightly diatomaceous
- 137-148 Clay - greenish-gray, virtually sand-free, slightly diatomaceous, scattered grains of feldspar, phosphorite, and magnetite; pelecypod shell impressions common
- 148-158 Clay - gray to greenish-gray; scattered sand grains; a few seed pods; trace of glauconite; diatomaceous
- 158-167 Clay and Sand (two lithologies) - (1) gray, virtually sand-free, diatomaceous clay. Subordinate buff, argillaceous (buff clay binder) sand; medium- to coarse-grained, moderately sorted, subrounded; scattered grains of feldspar, phosphorite, and magnetite; a few seed pods
- 167-179 " with the gray clay lithology predominant (about 80% of the sample)
- 179-190 Clay and Sand (two lithologies) (1) gray, virtually sand-free, slightly to moderately diatomaceous clay with traces of glauconite and phosphorite. Subordinate buff, argillaceous (buff clay binder) sand; fine- to coarse-grained, moderately sorted, subangular to rounded; a few grains of chert and magnetite
- 190-200 "
- 200-211 Clay - gray, with greenish cast, silty, fine, sandy; slightly diatomaceous

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211-221 Clay - gray, with greenish cast, scattered grains of coarse-sand; diatomaceous

221-232 Clay - brownish-gray, slightly silty and sandy; diatomaceous

NANJEMOY FORMATION (232-319')

232-242 Sand - brownish-gray, argillaceous (clay is slightly calcareous); fine- to coarse-grained, rather poorly sorted, subangular to slightly subrounded; clear quartz, with about 2% platy to equant rounded grains of phosphorite; scattered grains of garnet and epidote; small amount ferricrete; small amount of chalky shell debris, a few echinoid spines, plant fragments and diatoms

242-256 Sand and Shell - brownish-gray, slightly argillaceous, 30-40% shell fragments and a few small pebbles; sand is fine- to coarse-grained, rather poorly sorted, angular to subangular (quartz); fresh glauconite (about 30%) and clear to iron-stained quartz; small amount of cementation of grains, mostly by carbonate, but some by ferruginous clay; a few foraminifera and echinoid spines; slightly feldspathic

256-266 Sand - brown and black ("salt-and-pepper"), slightly argillaceous, 10% coarse shell fragments; fine- to coarse-grained, rather poorly sorted, angular to subangular (quartz); glauconite (30-35%) and clear quartz; calcareous clay binder; a few foraminifera and scattered echinoid spines and ostracods

266-277 Sand - brownish-gray, argillaceous (very calcareous clay); medium- to coarse-grained, moderately sorted; glauconite (35-40%) and clear quartz; abundant fine, chalky shell fragments; slightly micaceous (muscovite); a few foraminifera

277-287 "

287-298 " very argillaceous (calcareous clay), and abundant foraminifera \*

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298-308 Sand - brownish-gray, slightly argillaceous; fine- to coarse-grained, moderately sorted, angular to subrounded (quartz); glauconite and clear to green-tinted quartz in subequal amounts; small amount of muscovite; scattered pelecypod shell fragments and echinoid spines, moderate abundance of foraminifera \*\*

308-319 " less fossiliferous

MATTAPONI FORMATION (319-543')

319-329 Sand - "salt-and-pepper", trace of clay; medium-grained, fairly well sorted, subangular to subrounded (quartz); clear to yellow- and green-stained, fine- to very-coarse-grained quartz (25-35%), and fresh greenish-black to slightly oxidized glauconite (65-75%); small amounts of muscovite and green mica; scattered pelecypod shell fragments, and a moderate abundance of foraminifera including Robulus

329-340 Sand - dark-gray, very slightly argillaceous; medium-grained, fairly well sorted; fresh, medium-grained glauconite (70-80%) and more poorly sorted, clear to green-stained quartz (20-30%); small amount of muscovite; small number of foraminifera and a few ostracods

340-350 Sand - "salt-and-pepper", slightly argillaceous; medium-grained, well-sorted, fresh glauconite (50%), and fine- to very-coarse-grained, rather poorly sorted, angular to rounded quartz (50%); slightly micaceous (muscovite); a few foraminifera

350-361 " more glauconitic (65-75% glauconite)

361-371 Sand - brownish-gray, moderately argillaceous; very fine- to very-coarse-grained, poorly sorted, angular to subrounded, clear quartz (35%), and medium-grained, well-sorted, fresh glauconite (65%); traces of muscovite and phosphorite; a few foraminifera

371-383 " but more glauconitic (70-75% glauconite)

383-393 Sand - "salt-and-pepper", clean; coarse-grained, fairly well sorted; glauconite (50-60% and subrounded to rounded, clear to slightly tinted quartz (40-50%))

393-404 " more glauconitic (70-80% glauconite), and with small amount of yellow, limonitic clay

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- 404-415 Clay - pink and light-gray, sand free clays; and dark-gray, silty, micaceous clay; some coarse, glauconitic sand
- 415-425 Sand - black, moderately argillaceous (dark-gray, silty clay); very fine- to coarse-grained, rather poorly sorted; glauconite (60%) and angular to subrounded quartz (40%); traces of pyrite, muscovite, and phosphorite; a few foraminifera and sharks<sup>†</sup> teeth
- 425-435 Clay and Sand - pink, and light-gray, essentially sand free clays, and dark gray, silty, slightly sandy, micaceous clay; coarse, highly glauconitic sand (about 50% sand)
- 435-446 Sand - "salt-and-pepper"; fine- to coarse-grained, fairly well sorted; fine- to medium- grained, well-sorted, fresh to slightly oxidized glauconite (50%), and medium- to coarse-grained, well-sorted, subangular to subrounded, clear to yellowish quartz (50%); traces of garnet and phosphorite; scattered chunks pink, sand-free clay; a few echinoid spines and foraminifera (mostly Robulus and Dentalina )
- 446-457 "
- 457-468 "
- 468-480 " with slightly more phosphorite; more abundant and varied foraminiferal assemblage (Dentalina present); and a few ostracods \*\*
- 480-490 Clay and Sand - pink, and light-gray, essentially sand-free clays, and dark-gray, silty, slightly sandy, micaceous clay (total clay about 30%); medium- to coarse-grained, fairly well-sorted, highly glauconitic sand (about 70%); small amount platy brown phosphorite; some alteration of glauconite to limonite; moderately foraminiferal; few echinoid spines \*\*
- 490-501 " with more clay (55-65%) and less sand \*\*
- 501-511 Sand and Clay - pink and light-gray, essentially sand-free clays, and dark-gray, silty, micaceous clay (total clay 20-25%); fine- to medium-grained, moderately sorted quartz (50%) - glauconite (50%) sand; quartz subangular to well-rounded; small amount of phosphorite and a trace of pyrite; abundant and varied foraminiferal assemblage includes Dentalina, Robulus, and Textularia; ostracods abundant; scattered pelecypod fragments, echinoid spines, and sharks<sup>†</sup> teeth \*

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- 511-522 Sand - brown, speckled, clean; medium- to coarse-grained, well-sorted; subrounded to well rounded; clear to intensely stained (yellow to brown) quartz (approximately 60%), and fresh to intensely altered glauconite and limonite after glauconite (dark green, yellows, browns); small amount of muscovite; ostracods and foraminifera abundant (Globigerina, Dentaline, Textularia, Robulus); a few bryozoa and echinoid spines \*
- 522-533 " slightly less fossiliferous
- 533-543 Sand - "salt-and-pepper", trace of clay; medium- to coarse-grained, fairly well sorted; glauconite and quartz; much less oxidation of glauconite and staining of quartz than in preceding interval, foraminifera abundant; a few ostracods

PATUXENT FORMATION (543-669')

- 543-554 Sand - buff to gray; quartz, feldspar, and glauconite (about 10% fresh glauconite); a few foraminifera
- 554-564 " with more feldspar, and less glauconite (about 2% glauconite)
- 564-575 Sand - gray; arkosic; small amounts of glauconite and muscovite
- 575-585 Clay and Sand - tan, mottled clay (65-75%), and slightly glauconitic sand (25-35%)
- 585-596 Sand - tan, slightly argillaceous; arkosic; scattered grains of glauconite and muscovite
- 596-606 "
- 606-617 "
- 617-627 "
- 627-638 Clay and Sand - pink and gray clays; coarse-grained, arkosic, slightly glauconitic sand
- 638-648 "
- 648-659 Clay and Sand - brown clay, and coarse, glauconitic, arkosic sand; abundant sand-size pellets of earthy hematite
- 659-669 "
- 669-702 No samples

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\* microfossil separation mode, slide available

\*\* microfossil separation feasible

GEOLOGIC SUMMARY

	<u>Rock Unit</u>	<u>Age</u>
0-53 <sup>†</sup>	Columbia Group	Pleistocene
53-232 <sup>†</sup>	Calvert Formation	Middle Miocene
232-319 <sup>†</sup>	Nanjemoy Formation	Middle Eocene
319-543 <sup>†</sup>	Mattaponi Formation	Paleocene
543-669 <sup>†</sup>	Patuxent Formation	Early Cretaceous
669-702 <sup>†</sup>	No samples	

Virginia Division of Mineral Resources  
Robert H. Teifke, Geologist  
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