

INTERVAL SHEET

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VDMR Well No: 2051

Date rec'd: 11-24-67

Sample Interval: from 0 to: 240

PROP: C-170

Number of samples: 25

COMP:

Total Depth: 240

COUNTY: Nansemond

Oil or Gas: Water: Exploratory: X

From-To	From-To	From-To	From-To
0 - 10	-	-	-
10 - 20	-	-	-
20 - 30	-	-	-
30 - 40	-	-	-
40 - 50	-	-	-
50 - 60	-	-	-
60 - 70	-	-	-
70 - 80	-	-	-
80 - 90	-	-	-
90 - 100	-	-	-
100 - 110	-	-	-
110 - 120	-	-	-
120 - 130	-	-	-
130 - 140	-	-	-
140 - 150	-	-	-
150 - 160	-	-	-
160 - 170	-	-	-
170 - 180	-	-	-
180 - 190	-	-	-
190 - 200	-	-	-
200 - 210	-	-	-
210 - 220	-	-	-
220 - 230	-	-	-
230 - 240	-	-	-
240 -	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

All intervals have both washed and unwashed samples

OWNER : Atlantic Coast Line Railway
 DRILLER : Norfolk and Western Railway
 COUNTY : Nansemond
 LOCATION : _____

REPOSITORY NUMBER : 2051
 ELEVATION : 50
 TOTAL DEPTH : 240
~~VDMP Well No. 2051~~
 County: Nansemond

Well: C-170

Property: Atlantic Coast Line Railway

Driller: Norfolk and Western Railway

Location: 6.0 miles S. of Holland, on ACL spur to Franklin,

[76° 47' 00" W, 36° 36' 00" N]

Elevation: 50 feet

Total Depth: 240 feet

Started drilling: June, 1966

Completed drilling: June, 1966

Sample description by: R. H. Teifke, Virginia Division of Mineral Resources, April, 1968

GEOLOGIC LOG

Depth in feet

COLUMBIA GROUP (0-10')

0-10 Sand - moderately abundant matrix of orange-brown clay; fine- to very fine-grained, very well-sorted, angular; trace of muscovite .

YORKTOWN FORMATION (10-150')

10-20 Clay - gray, mottled orange-brown, very sandy, 5-10% pelecypod valves and shell fragments; sand is fine- to very fine-grained, well-sorted, angular; accessory muscovite; abundant anhydrite pseudomorphs after gypsum; foraminifers moderately abundant .

20-30 Clay - greenish-gray, silty and sandy, 5% pelecypod shell fragments; fine- to very fine-grained, very well-sorted, angular; accessory glauconite and muscovite; abundant anhydrite pseudomorphs after gypsum; a few echinoid spines; foraminifers moderately abundant

5 percent pelecypod shell fragments and

30-40 " , except : moderately sandy; 15-20% percent pelecypod shell fragments .

40-50 " , except : slightly sandy; 5% percent pelecypod shell fragments and a few small gastropods .

VDMR Well No. 2051

- ✓ 50-60 Clay - ¹ greenish-gray, very slightly sandy, ³ ~~5%~~ ² ~~small pelecypod shell fragments~~; sand is fine- to very fine-grained, well-sorted, angular; accessory muscovite and glauconite; abundant anhydrite pseudomorphs after gypsum; *5 percent small pelecypod shell fragments.*
- ✓ 60-70 "
- ✓ 70-80 " *except:* moderately sandy; ^{percent} 20% small pelecypod shell fragments.
- ✓ 80-90 Shell and Sand - moderately abundant matrix of greenish-gray clay; ~~20%~~ coarse pelecypod-gastropod shell debris, ~~40%~~ fine- to medium-grained, fairly well-sorted sand; sand is ~~80%~~ clear to greenish, angular quartz, and ~~20%~~ fresh glauconite; anhydrite pseudomorphs after gypsum are common; foraminifers *(6 percent)* *(40 percent)* *(80 percent)* moderately abundant. *(20 percent)*
- ✓ 90-100 " *except:* clay is gray and greenish-brown; sand is 90% quartz and 10% glauconite.
- ✓ 100-110 Clay - ¹ greenish-brown, silty, moderately sandy, ³ ~~5-10%~~ ² ~~pelecypod shell fragments~~; sand is generally fine, ^{grained} fairly well-sorted, angular; clear to greenish-quartz, with ~~1%~~ ^(10 percent) glauconite, ~~3-5%~~ fresh gypsum *(3-5 percent)* and minor muscovite; a very few foraminifers.
- ✓ CALVERT FORMATION (110-165')
110-120 Clay - ¹ gray, compact, slightly to moderately sandy, ³ ~~few shell fragments~~; sand is fine, ^{grained} well-sorted, angular; ~~3%~~ ^(3-5 percent) glauconite; gypsiferous; ² ~~5-10 percent pelecypod shell fragments~~; a few shell fragments.
- ✓ 120-130 "
- ✓ 130-140 "
- ✓ 140-150 "

~~see CALVERT FORMATION (150-170')~~

- ✓ 150-160 Sand - moderately abundant matrix of light-brown, dolomitic silt and, subordinately, of blackish-brown bituminous matter; ~~a very few shell fragments;~~ very fine- to coarse-grained, rather poorly sorted (skewed fine); ^{65%} very clear, subangular to subrounded quartz; ^{10%} pelletal and bone phosphorite; and ^{10%} light- to medium-green glauconite; sand is locally a dolomitic sandstone; *a very few shell fragments.*
- ✓ 160-170 Sand - very abundant matrix of brown dolomitic silt and blackish-brown bituminous matter, with pockets and lenses of light bluish-gray glauconitic clay; in part, a well-indurated, sandy, dolomitic siltstone; ~~a few poorly preserved shell fragments;~~ sand is medium-grained, moderately sorted; ~~angular to subrounded, very clear quartz;~~ ^{70 percent} bone and pelletal phosphorite; ^{10 percent} a few foraminifers (Nonion, Uvigerina) and *poorly preserved shell fragments.*

^{165-230'}
MATTAPONI FORMATION (170-200')

- ✓ 170-180 Sand - abundant matrix of green clay, locally yellowish-green, yellow, and orange-brown; ² medium- to coarse-grained, fairly well-sorted; ^{80%} dark- to light-green autochthonous glauconite; ^{10%} quartz; minor gypsum and pyrite; numerous phosphatic concretions and small nodules
- ✓ 180-190 Limestone - ¹ light grayish-green; ² sandy; ³ fossiliferous; ~~arenaceous;~~ glauconitic; nodular phosphorite and encrusting pyrite are common.
- ✓ 190-200 //

~~TUSCALOOSA FORMATION (200-240')~~

- ✓ 200-210 Sand - moderately abundant matrix of drab purplish-gray clay, a few fragments of shell and shell limestone; fine- to very coarse-grained, poorly sorted; ^{40 percent} clear to greenish quartz; ^{40 percent} dark-green glauconite; ^{10 percent} small amount of bone and nodular phosphorite; ¹ foraminifers common, but not abundant.

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- ✓ 210-220 Sand - moderately abundant matrix of drab purplish-gray clay, a few fragments of shell and shell limestone, coarse- to very coarse-grained, moderately sorted; quartz (50%), glauconite (40%) small amount of bone and nodular phosphorite; foraminifers common, but not abundant;
- ✓ 220-230 II, except: medium- to very coarse-grained, fairly well-sorted (skewed fine); quartz (60%) glauconite (30%).
- TRANSITIONAL BEDS (230-240)
- ✓ 230-240 Clay - brightly mottled, with yellow aspect, sandy, a few fragments of shell and of glauconitic limestone; sand is very fine- to very coarse-grained, poorly sorted; 30% quartz, 15% dark- to bluish-green glauconite, slightly micaceous; minor nodular and bone phosphorite; a few poorly-preserved foraminifers;
- ✓ 240 " , except: grades into dark-gray fissile clay with a few carbonized wood fragments.

GEOLOGIC SUMMARY

	<u>Rock Unit</u>	<u>Age</u>
0-10	Columbia Group	Pleistocene post-Miocene
10-150 110	Yorcktown Formation	Late Miocene
110 150-170 165	Calvert Formation	Middle Miocene
165 170-200 230	Mattaponi Formation	Paleocene - Late Cretaceous
230 200-240	Tuscaloosa Formation Transitional Beds	Late Cretaceous

* The use of the lithologic term, "clay" includes all size ranges of particles less than 1/16 mm.

0-10	Columbia Group	Pleistocene
10-110	Yorcktown Formation	Miocene
110-165	Calvert Formation	Miocene
165-230	Mattaponi Formation	Paleocene - Late Cretaceous
230-240	Transitional beds	Late Cretaceous

R.H. Trumble
3/7/72

VDMR Well No. 2051
County: Nansemond

Well: C-170

Property: Atlantic Coast Line Railway *NAN-T-17*

Driller: Norfolk and Western Railway

Location: 6.0 miles S. of Holland, on ACL spur to Franklin

76° 47' 00" W, 36° 36' 00" N

Elevation: 50 feet

Total Depth: 240 feet

Started drilling: June, 1966

Completed drilling: June, 1966

Sample description by: R. H. Teifke, Virginia Division of Mineral
Resources, April, 1968

GEOLOGIC LOG *

Depth in
feet

COLUMBIA GROUP (0-10')

0-10 Sand - moderately abundant matrix of orange-brown clay;
fine- to very fine-grained, very well-sorted,
angular; trace of muscovite

YORKTOWN FORMATION (10-150')

10-20 Clay - gray, mottled orange-brown, very sandy, 5-10%
pelecypod valves and shell fragments; sand is fine-
to very fine-grained, well-sorted, angular; accessory
muscovite; abundant anhydrite pseudomorphs
after gypsum; foraminifers moderately abundant

20-30 Clay - greenish-gray, silty and sandy, 5% pelecypod shell
fragments; fine- to very fine-grained, very well-
sorted, angular; accessory glauconite and mus-
covite; abundant anhydrite pseudomorphs after
gypsum; a few echinoid spines; foraminifers mod-
erately abundant

30-40 " moderately sandy; 15-20%
pelecypod shell fragments

40-50 " slightly sandy; 5% pelecypod
shell fragments, and a few
small gastropods

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50-60	Clay -	greenish-gray, very slightly sandy, 5% small pelecypod shell fragments; sand is fine- to very fine-grained, well-sorted, angular; accessory muscovite and glauconite; abundant anhydrite pseudomorphs after gypsum
60-70	"	
70-80	"	moderately sandy; 20% small pelecypod shell fragments
80-90	Shell and sand -	moderately abundant matrix of greenish-gray clay; 60% coarse pelecypod-gastropod shell debris, 40% fine- to medium-grained, fairly well-sorted sand; sand is 80% clear to greenish, angular quartz, and 20% fresh glauconite; anhydrite pseudomorphs after gypsum are common; foraminifers moderately abundant
90-100	"	clay is gray and greenish-brown; sand is 90% quartz, 10% glauconite
100-110	Clay -	greenish-brown, silty, moderately sandy, 5-10% pelecypod shell fragments; sand is generally fine, fairly well-sorted, angular; clear to greenish-quartz, with 10% glauconite, 3-5% fresh gypsum, and minor muscovite; a very few foraminifers
110-120	Clay -	gray, compact, slightly to moderately sandy, a few shell fragments; sand is fine, well-sorted, angular; 3-5% glauconite; gypsiferous
120-130	"	
130-140	"	
140-150	"	

CALVERT FORMATION (150-170')

150-160 Sand -- moderately abundant matrix of light-brown, dolomitic silt and, subordinately, of blackish-brown bituminous matter; a very few shell fragments; very fine- to coarse-grained, rather poorly sorted (skewed fine); 65% very clear, subangular to subrounded quartz, 10% pelletal and bone phosphorite, and 10% light- to medium-green glauconite; sand is locally a dolomitic sandstone

160-170 Sand -- very abundant matrix of brown dolomitic silt and blackish-brown bituminous matter, with pockets and lenses of light bluish-gray glauconitic clay; in part, a well-indurated, sandy, dolomitic siltstone; a few poorly preserved shell fragments; sand is medium-grained, moderately sorted; 70% angular to subrounded, very clear quartz, 10% bone and pelletal phosphorite; a few foraminifers (Nonion, Uvigerina)

MATTAPONI FORMATION (170-200')

170-180 Sand -- abundant matrix of green clay, locally yellowish-green, yellow, and orange-brown; medium- to coarse-grained, fairly well-sorted; 80% dark- to light-green autochthonous glauconite, 10% quartz; minor gypsum and pyrite; numerous phosphatic concretions and small nodules

180-190 Limestone -- light grayish-green, fossiliferous, arenaceous, glauconitic; nodular phosphorite and encrusting pyrite are common

190-200 "

TUSCALOOSA FORMATION (200-240')

200-210 Sand -- moderately abundant matrix of drab purplish-gray clay, a few fragments of shell and shell limestone; fine- to very coarse-grained, poorly sorted; 40% clear to greenish quartz, 40% dark-green glauconite; small amount of bone and nodular phosphorite; foraminifers common, but not abundant

210-220	Sand - moderately abundant matrix of drab purplish-gray clay, a few fragments of shell and shell limestone; coarse- to very coarse-grained, moderately sorted; quartz 50%, glauconite 40%; small amount of bone and nodular phosphorite; foraminifers common, but not abundant
220-230	" medium- to very coarse-grained, fairly well-sorted (skewed fine); quartz 60%, glauconite 30%
230-240	Clay - brightly mottled, with yellow aspect, sandy, a few fragments of shell and of glauconitic limestone; sand is very fine- to very coarse-grained, poorly sorted; 30% quartz, 15% dark- to bluish-green glauconite; slightly micaceous; minor nodular and bone phosphorite; a few poorly-preserved foraminifers
240	" grades into dark-gray fissile clay with a few carbonized wood fragments

GEOLOGIC SUMMARY

	<u>Rock Unit</u>	<u>Age</u>
0-10	Columbia Group	Pleistocene
10-150	Yorktown Formation	Late Miocene
150-170	Calvert Formation	Middle Miocene
170-200	Mattaponi Formation	Paleocene
200-240	Tuscaloosa Formation	Late Cretaceous

* The use of the lithologic term, "clay" includes all size ranges of particles less than 1/16 mm.