

INTERVAL SHEET

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VDMR Well No: 2039

Date rec'd:

Sample Interval: from 0 to: 370

PROP: C-167

Number of samples: 31

COMP:

Total Depth: 370

COUNTY: Nansemond

Oil or Gas: Water: Exploratory: X

From-To	From-To	From-To	From-To
0 - 10	330 - 340	-	-
10 - 20	340 - 350	-	-
20 - 30	350 - 360	-	-
-	360 - 370	-	-
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	-	-	-
-	-	-	-
200 - 210	-	-	-
210 - 220	-	-	-
220 - 230	-	-	-
230 - 240	-	-	-
240 - 250	-	-	-
250 - 260	-	-	-
260 - 270	-	-	-
270 - 280	-	-	-
280 - 290	-	-	-
-	-	-	-
300 - 310	-	-	-

All intervals have both washed and unwashed samples

Drilled 6/66

Continental

L

ELEV.: 65'

Geologic Log ✓  
Strip Log ✓

**CONFIDENTIAL**

NAN-T-15

C-167

INTERVAL SHEET

Page 1 of 1

VDMR Well No: **WELL NO. 2039**

Date rec'd: 1/19/67

Sample Interval: from 0 to 370

PROP:

Number of samples: 31

COMP:

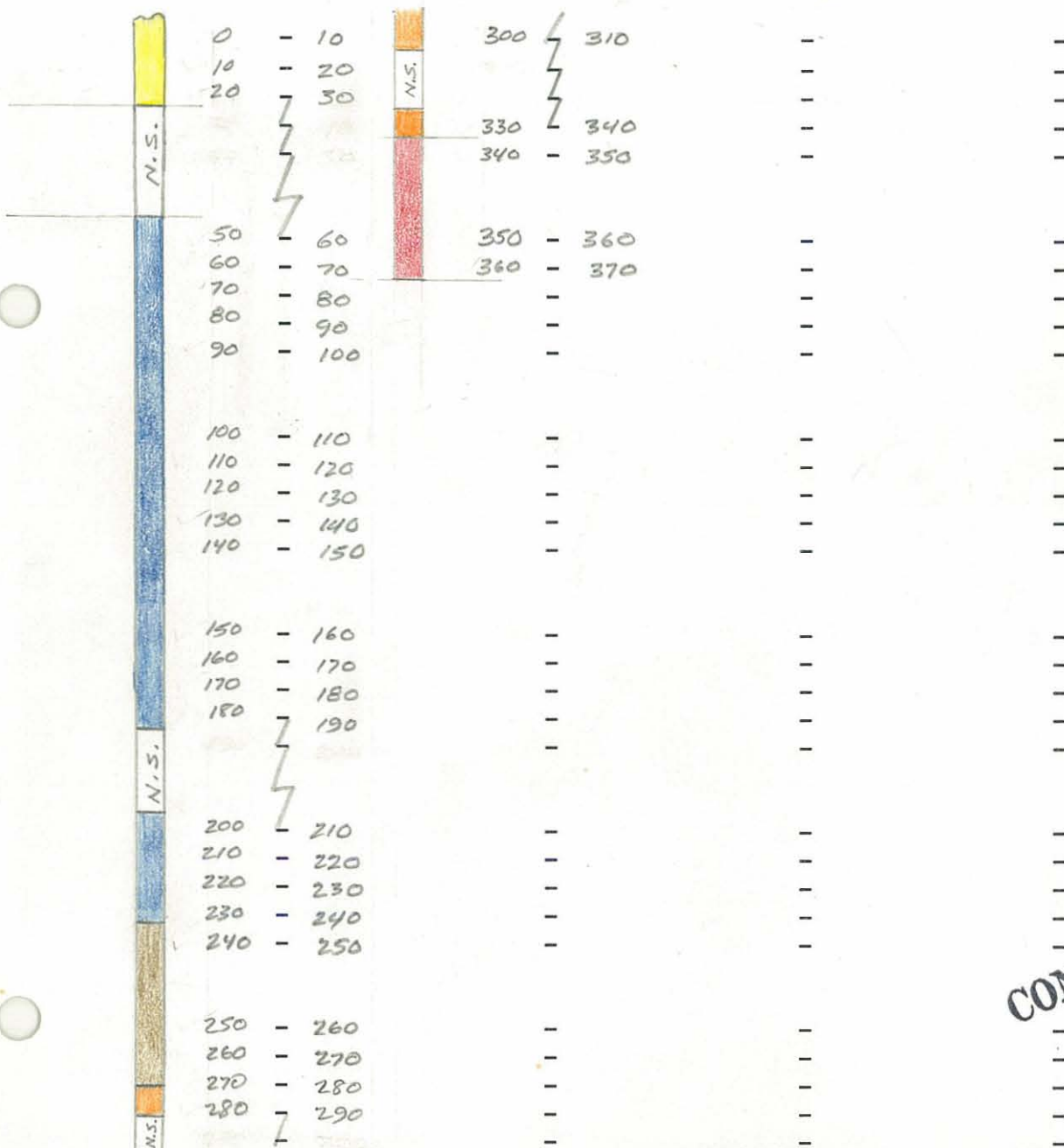
Total Depth: 370'

COUNTY: Nausemond

Nursey, Va. on  
ACL RR  
(SUFFOLK (7.5')  
SHEET)

Oil or Gas: Water: Exploratory: ✓

LINW  
From-To From-To From-To From-To



**CONFIDENTIAL**

samples were poorly marked.

Well: C-167  
Property: Atlantic Coast Line Railway  
Driller: Norfolk and Western Railway  
Location: Nansemond at Nurney, on railroad right-of-way;  
76°37'00" W, 36°38'30"N  
Total Depth: 370 feet  
Elevation: 65 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 (0-50')

0-10	Sand - moderately abundant matrix of gray clays; medium-grained, well-sorted, angular to subrounded; traces of muscovite and magnetite
10-20	" slightly feldspathic
20-30	" slightly feldspathic; trace of decomposed glauconite
30-50	No sample

YORKTOWN FORMATION (50-240')

50-60	Shell and Sand - abundant matrix of reddish-brown clay; 55 percent pelecypod (-gastropod-echinoid-bryozoan) shell debris, poorly sorted (0.1-10.0 mm); 25 percent fine-to medium-grained, variably rounded quartz sand; trace of glauconite and phosphorite; foraminifers moderately abundant; a few ostracods
60-70	" 55 percent shell debris, 45 percent quartz sand
70-80	Clay - gray, silty, sandy, 15 percent shell fragments; sand is fine-grained, well-sorted, angular; traces of muscovite and glauconite, foraminifers moderately abundant
80-90	" less than 5 percent shell fragments
90-100	" "
100-110	" foraminifers abundant, ostracods common
110-120	" foraminifers common, but not abundant

- 120-130 Clay - greenish-gray, silty, sandy, less than 5 percent shell fragments; sand is fine- to very fine-grained, well-sorted, angular; traces of glauconite, phosphorite, and muscovite; moderately gypsiferous; slightly diatomaceous; foraminifers and ostracods moderately abundant
- 130-140 Sand - moderately abundant matrix of light-gray clay, locally orange-brown; fine- to medium-grained, well-sorted, angular to subrounded; slightly feldspathic; accessory magnetite and muscovite
- 140-150 Clay - gray, with greenish cast, silty, slightly sandy, a few shell fragments; sand is fine- to coarse-grained, poorly sorted; moderately gypsiferous; a few foraminifers, ostracods and echinoid spines
- 150-160 Sand - grayish-brown to greenish-brown, clayey, 5 percent shell fragments; fine- to medium-grained, fairly well-sorted; sand is 90 percent clear to greenish, angular quartz; 10 percent dark-green glauconite; gypsiferous; echinoid spines and foraminifers common, but not abundant
- 160-170 " fine-grained, very well-sorted, 3-5 percent glauconite
- 170-180 Clay - bluish-gray, uniformly silty, some gypsum; and a few foraminifers (Nonion)
- 180-190 Clay - grayish-brown, silty, slightly sandy, trace of shell material; sand is fine- to coarse-grained, poorly sorted; moderately gypsiferous; foraminifers common
- 190-200 No sample
- 200-210 Clay - grayish-brown, silty, slightly sandy, 5 percent shell fragments; sand is medium-grained, fairly well-sorted; trace of glauconite; gypsiferous; foraminifers rare
- 210-220 Clay - greenish-gray, silty, slightly sandy, 5 percent shell fragments; sand is fine- to very fine-grained, well-sorted, 80 percent clear to greenish, angular quartz, 20 percent dark-green glauconite; trace of muscovite; large crystals of gypsum are common
- 220-230 Clay - greenish-gray, uniformly silty, very slightly sandy, trace of iron-stained shell; small amounts of muscovite and glauconite; gypsiferous
- 230-240 "

CALVERT FORMATION (240-280')

- 240-250 Clay - gray, with reddish cast, compact, slightly sandy, trace of shell fragments; sand is fine- to medium-grained, fairly well-sorted; very slightly glauconitic; gypsiferous; traces of muscovite and bone phosphorite; a few poorly preserved lenticulinid foraminifers
- 250-260 "
- 260-270 Sand - moderately abundant matrix of dark-brown clay, a few large shell fragments; fine- to medium-grained, well-sorted; angular to subangular; clear quartz, with 5 percent bone phosphorite; minor gypsum; a few ostracods and poorly preserved foraminifers
- 270-280 Clay - brown, sandy; 5 percent pelecypod shell fragments; sand is fine- to coarse-grained, rather poorly sorted (skewed fine), angular to subrounded; clear quartz, with minor bone phosphorite; a very few foraminifers, including Siphogenerina

MATTAPONI FORMATION (280-340')

- 280-290 Clay - light-brown and dolomitic, subordinately green and glauconitic, sandy, a few shell fragments and fragments of light-gray, fine-grained, glauconite bearing limestone; sand is fine- to coarse-grained, poorly sorted, moderately glauconitic; minor gypsum, and nodular and bone phosphorite; a few foraminifers
- 290-300 No sample
- 300-310 Sand - abundant matrix of brown and green clays, a few fragments of glauconitic limestone; fine- to coarse-grained, poorly sorted; 60 percent medium-green glauconite; 20 percent quartz, 5 percent gypsum; a very few foraminifers
- 310-330 No samples
- 330-340 Limestone - greenish-gray, shell bearing, sandy; sand consists of 60 percent quartz, and 40 percent medium-green glauconite; minor nodular and bone phosphorite

TRANSITIONAL BEDS (340-370')

- 340-350 Sand - very abundant matrix of dark-gray clay, a few fragments of glauconitic and shell-bearing limestone; medium- to coarse-grained, fairly well-sorted; 65 percent clear, subangular quartz, 15 percent dark- to medium-green glauconite; minor nodular and bone phosphorite; very slightly gypsiferous, trace of garnet; foraminifers common, but not abundant

350-360 Sand - abundant matrix of variegated clay, 5 percent shell fragments and fragments of glauconitic and shell-bearing limestone; fine- to coarse-grained, moderately sorted; sand is 75 percent angular to rounded clear quartz; 25 percent medium-green glauconite; minor phosphorite and pyrite; a few poorly-preserved foraminifers

360-370 " bright red clay is dominant; slightly feldspathic

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

GEOLOGIC SUMMARY

	<u>Rock Unit</u>	<u>Age</u>
0-50'	Columbia Group	post- Miocene
50-240'	Yorktown Formation	Miocene
240-280'	Calvert Formation	Miocene
280-340'	Mattaponi Formation	Paleocene - Late Cretaceous
340-370'	Transitional Beds	Late Cretaceous

VDMR: Well No. 2039  
County: Nansemond

Well: C-167  
Property: Atlantic Coast Line Railway  
Driller: Norfolk and Western Railway  
Location: Nansemond at Nurney, on railroad right-of-way;  
76°37'00" W, 36°38'30"N  
Total Depth: 370 feet  
Elevation: 65 feet  
Started drilling: June 1966 Completed drilling: June 1966  
Sample description by: R. H. Teifke, Virginia Division of Mineral Resources,  
April, 1968 ; *Stratigraphy revised, R. H. Teifke, March 3, 1972*

Geologic Log \*

Depth in  
feet

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10-20	" slightly feldspathic
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30-50	No sample

YORKTOWN FORMATION (50-240')

50-60	Shell and Sand - abundant matrix of reddish-brown clay; 55 percent pelecypod (-gastropod-echinoid-bryozoan) shell debris, poorly sorted (0.1-10.0 mm); 25 percent fine-to medium-grained, variably rounded quartz sand; trace of glauconite and phosphorite; foraminifers moderately abundant; a few ostracods
60-70	" 55 percent shell debris, 45 percent quartz sand
70-80	Clay - gray, silty, sandy, 15 percent shell fragments; sand is fine-grained, well-sorted, angular; traces of muscovite and glauconite, foraminifers moderately abundant
80-90	" less than 5 percent shell fragments
90-100	" "
100-110	" foraminifers abundant, ostracods common
110-120	" foraminifers common, but not abundant

- 120-130 Clay - greenish-gray, silty, sandy, less than 5 percent shell fragments; sand is fine- to very fine-grained, well-sorted, angular; traces of glauconite, phosphorite, and muscovite; moderately gypsiferous; slightly diatomaceous; foraminifers and ostracods moderately abundant
- 130-140 Sand - moderately abundant matrix of light-gray clay, locally orange-brown; fine- to medium-grained, well-sorted, angular to subrounded; slightly feldspathic; accessory magnetite and muscovite
- 140-150 Clay - gray, with greenish cast, silty, slightly sandy, a few shell fragments; sand is fine- to coarse-grained, poorly sorted; moderately gypsiferous; a few foraminifers, ostracods and echinoid spines
- 150-160 Sand - grayish-brown to greenish-brown, clayey, 5 percent shell fragments; fine- to medium-grained, fairly well-sorted; sand is 90 percent clear to greenish, angular quartz; 10 percent dark-green glauconite; gypsiferous; echinoid spines and foraminifers common, but not abundant
- 160-170 " fine-grained, very well-sorted, 3-5 percent glauconite
- 170-180 Clay - bluish-gray, uniformly silty, some gypsum; and a few foraminifers (Nonion)
- 180-190 Clay - grayish-brown, silty, slightly sandy, trace of shell material; sand is fine- to coarse-grained, poorly sorted; moderately gypsiferous; foraminifers common
- 190-200 No sample
- 200-210 Clay - grayish-brown, silty, slightly sandy, 5 percent shell fragments; sand is medium-grained, fairly well-sorted; trace of glauconite; gypsiferous; foraminifers rare
- 210-220 Clay - greenish-gray, silty, slightly sandy, 5 percent shell fragments; sand is fine- to very fine-grained, well-sorted, 80 percent clear to greenish, angular quartz, 20 percent dark-green glauconite; trace of muscovite; large crystals of gypsum are common
- 220-230 Clay - greenish-gray, uniformly silty, very slightly sandy, trace of iron-stained shell; small amounts of muscovite and glauconite; gypsiferous
- 230-240 "



## CALVERT FORMATION (240-280')

- 240-250 Clay - gray, with reddish cast, compact, slightly sandy, trace of shell fragments; sand is fine- to medium-grained, fairly well-sorted; very slightly glauconitic; gypsiferous; traces of muscovite and bone phosphorite; a few poorly preserved lenticulinid foraminifers
- 250-260 "
- 260-270 Sand - moderately abundant matrix of dark-brown clay, a few large shell fragments; fine- to medium-grained, well-sorted; angular to subangular; clear quartz, with 5 percent bone phosphorite; minor gypsum; a few ostracods and poorly preserved foraminifers
- 270-280 Clay - brown, sandy; 5 percent pelecypod shell fragments; sand is fine- to coarse-grained, rather poorly sorted (skewed fine), angular to subrounded; clear quartz, with minor bone phosphorite; a very few foraminifers, including Siphogenerina

## MATTAPONI FORMATION (280-340')

- 280-290 Clay - light-brown and dolomitic, subordinately green and glauconitic, sandy, a few shell fragments and fragments of light-gray, fine-grained, glauconite bearing limestone; sand is fine- to coarse-grained, poorly sorted, moderately glauconitic; minor gypsum, and nodular and bone phosphorite; a few foraminifers
- 290-300 No sample
- 300-310 Sand - abundant matrix of brown and green clays, a few fragments of glauconitic limestone; fine- to coarse-grained, poorly sorted; 60 percent medium-green glauconite; 20 percent quartz, 5 percent gypsum; a very few foraminifers
- 310-330 No samples
- 330-340 Limestone - greenish-gray, shell bearing, sandy; sand consists of 60 percent quartz, and 40 percent medium-green glauconite; minor nodular and bone phosphorite

## TRANSITIONAL BEDS (340-370')

- 340-350 Sand - very abundant matrix of dark-gray clay, a few fragments of glauconitic and shell-bearing limestone; medium- to coarse-grained, fairly well-sorted; 65 percent clear, subangular quartz, 15 percent dark- to medium-green glauconite; minor nodular and bone phosphorite; very slightly gypsiferous, trace of garnet; foraminifers common, but not abundant

- 350-360 Sand - abundant matrix of variegated clay, 5 percent shell fragments and fragments of glauconitic and shell-bearing limestone; fine- to coarse-grained, moderately sorted; sand is 75 percent angular to rounded clear quartz; 25 percent medium-green glauconite; minor phosphorite and pyrite; a few poorly-preserved foraminifers
- 360-370 " bright red clay is dominant; slightly feldspathic

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

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VDMR Well No. 2039

County: Nansemond

Well: C-167

Property: Atlantic Coast Line Railroad

Driller: Norfolk and Western Railway

Location: Nansemond at Nurney, on railroad right-of-way;  
76°37'00" W, 36°38'30"N

Elevation: 65 feet

Total Depth: 370 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

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10-20	" slightly feldspathic
20-30	" slightly feldspathic; trace of decomposed glauconite
30-50	No sample

YORKTOWN FORMATION (50-240')

50-60	Shell and sand — abundant matrix of reddish-brown clay; 55% pelecypod (-gastropod-echinoid-bryozoan) shell debris, poorly sorted (0.1-10.0 mm); 25% fine- to medium-grained, variably rounded quartz sand; trace of glauconite and phosphorite; foraminifers moderately abundant; a few ostracods
60-70	" 55% shell debris, 45% quartz sand

VDMR Well No. 2039

70-80	Clay — gray, silty, sandy, 15% shell fragments; sand is fine-grained, well-sorted, angular; traces of muscovite and glauconite, foraminifers moderately abundant
80-90	" less than 5% shell fragments
90-100	" "
100-110	" foraminifers abundant, ostracods common
110-120	" foraminifers common, but not abundant
120-130	Clay — greenish-gray, silty, sandy, less than 5% shell fragments; sand is fine- to very fine-grained, well-sorted, angular; traces of glauconite, phosphorite, and muscovite; moderately gypsiferous; slightly diatomaceous; foraminifers and ostracods moderately abundant
130-140	Sand — moderately abundant matrix of light-gray clay, locally orange-brown; fine- to medium-grained, well-sorted, angular to subrounded; slightly feldspathic; accessory magnetite and muscovite
140-150	Clay — gray, with greenish cast, silty, slightly sandy, a few shell fragments; sand is fine- to coarse-grained, poorly sorted; moderately gypsiferous; a few foraminifers, ostracods and echinoid spines
150-160	Sand — grayish-brown to greenish-brown, clayey, 5% shell fragments; fine- to medium-grained, fairly well-sorted; sand is 90% clear to greenish, angular quartz; 10% dark-green glauconite; gypsiferous; echinoid spines and foraminifers common, but not abundant
160-170	" fine-grained, very well-sorted, 3-5% glauconite

VDMR Well No. 2039

170-180	Clay — bluish-gray, uniformly silty, some gypsum; a few foraminifers ( <u>Nonion</u> )
180-190	Clay — grayish-brown, silty, slightly sandy, trace of shell material; sand is fine- to coarse-grained, poorly sorted; moderately gypsiferous; foraminifers rare
190-200	No sample
200-210	Clay — grayish-brown, silty, slightly sandy, 5% shell fragments; sand is medium-grained, fairly well-sorted; trace of glauconite; gypsiferous; foraminifers rare
210-220	Clay — greenish-gray, silty, slightly sandy, 5% shell fragments; sand is fine- to very fine-grained, well-sorted, 80% clear to greenish, angular quartz, 20% dark-green glauconite; trace of muscovite; large crystals of gypsum are common
220-230	Clay — greenish-gray, uniformly silty, very slightly sandy, trace of iron-stained shell; small amounts of muscovite and glauconite; gypsiferous
230-240	"
CALVERT FORMATION (240-280')	
240-250	Clay — gray, with reddish cast, compact, slightly sandy, trace of shell fragments; sand is fine- to medium-grained, fairly well-sorted; very slightly glauconitic; gypsiferous; traces of muscovite and bone phosphorite; a few poorly preserved lenticulinid foraminifers
250-260	"
260-270	Sand — moderately abundant matrix of dark-brown clay, a few large shell fragments; fine- to medium-grained, well-sorted; angular to subangular; clear quartz, with 5% bone phosphorite; minor gypsum; a few ostracods and poorly-preserved foraminifers

VDMR Well No. 2039

270-280 Clay — brown, sandy, 5% pelecypod shell fragments; sand is fine- to coarse-grained, rather poorly sorted (skewed fine), angular to subrounded; clear quartz, with minor bone phosphorite; a very few foraminifers, including Siphogenerina

MATTAPONI FORMATION (280-340')

280-290 Clay — light-brown and dolomitic, subordinately green and glauconitic, sandy, a few shell fragments and fragments of light-gray, fine-grained, glauconite-bearing limestone; sand is fine- to coarse-grained, poorly sorted, moderately glauconitic; minor gypsum, and nodular and bone phosphorite; a few foraminifers

290-300 No sample

300-310 Sand — abundant matrix of brown and green clays, a few fragments of glauconitic limestone; fine- to coarse-grained, poorly sorted; 60% medium-green glauconite; 20% quartz, 5% gypsum; a very few foraminifers

310-330 No samples

330-340 Limestone — greenish-gray, shell-bearing, sandy; sand consists of 60% quartz, and 40% medium-green glauconite; minor nodular and bone phosphorite

TUSCALOOSA FORMATION (340-370')

340-350 Sand — very abundant matrix of dark-gray clay, a few fragments of glauconitic and shell-bearing limestone; medium- to coarse-grained, fairly well-sorted; 65% clear, subangular quartz, 15% dark- to medium-green glauconite; minor nodular and bone phosphorite; very slightly gypsiferous, trace of garnet; foraminifers common, but not abundant

VDMR Well No. 2039

- 350-360 Sand — abundant matrix of variegated clay, 5% shell fragments and fragments of glauconitic and shell-bearing limestone; fine- to coarse-grained, moderately sorted; sand is 75% angular to rounded, clear quartz; 25% medium-green glauconite; minor phosphorite and pyrite; a few poorly-preserved foraminifers
- 360-370 " bright-red clay is dominant; slightly feldspathic

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

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	<u>Rock Unit</u>	<u>Age</u>
0-30'	Columbia Group	Pleistocene
30-50'	No samples	-
50-240'	Yorktown Formation	Late Miocene
240-280'	Calvert Formation	Middle Miocene
280-340'	Mattaponi Formation	Paleocene
340-370'	Tuscaloosa Formation	Late Cretaceous

GILBERT BOND  
25% COTTON