INTERVAL SHEET

Page 1 of 1 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

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All intervals have both washed and unwashed samples

Dulled 6/66
Continental
ELEV.: 501
L
Geologic Log &
Strip Log &

CONFIDENTIAL

NAN-T-17 C-170

INTERVAL SHEET

WELL NO. 2051 Page / of VDMR Well No: Date rec'd: 7/19/67 Sample Interval: from O to 240 6.0 Miles 5. PROP: Number of samples: 25 of Hollond on COMP: 2401 ACL spur to Total Depth: Franklin Nansemond COUNTY: Water: Exploratory: v Oil or Gas: (HOLLAND (15") SHEET) UNW From-To From-To From-To From-To 10 1085 10 20 20 30 30 40 50 50 60 60 70 70 80 80 90 90 100 100 110 110 120 120 130 130 1410 148 BS 140 150 150 160 160 170 168 35 170 180 180 190 200 190 197 210 200 220 COMPLDENTIAL

OWNER : Atlantio Coast Line Rallway REPOSITORY NUMBER: 2051 DRILLER : Novfolk and Western Rellway
COUNTY: Nansemond ELEVATION: 50 LOCATION : 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 Completed drilling: June, 1966 Started 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') Sand - moderately abundant matrix of orange-brown clay; 0 - 10fine- 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 fineto very fine-grained, well-sorted, angular; accessory muscovite; abundant anhydrite pseudomorphs after gypsum; yforaminifers moderately abundant. Clay - greenish-gray, silty and sandy, 5% polecyprolished 20 - 30fregments; fine - to very fine-grained, very wellscrted, angular; accessory glauconite and muscovite; abundant anhydrite pseudomorphs after gypsum; a few echinoid spines; foraminifers moderately abundant 5 percent policy and shell forgreen and 30-40 moderately sandy; 15-20% percent pelecypod shell fragments'. slightly sandy; 5% pelecypod 40-50

shell fragments and a few

small gastropods.

VDMR Well No. 2051

	1		
	50-60	Clare	greenish-gray, very slightly sandy, 5% small pele-
V	30-00	Clay -	cypod shell fragments; sand is fine- to very fine-
		المتأو المتعلقة المتع	grained, well-sorted, angular; accessory muscovite
			and glauconite; abundant anhydrite pseudomorphs
I			after gypsum ; 5 percent annual pelecupod shell frogression.
J	60-70		11
1			pareent
J	70-80		Il except moderately sandy; 20% small
			pelecypod shell fragments •
/	8 0-90	Chall an	d Sand - moderately abundant matrix of greenish-
V	50-70		gray clay:
		()	debris, fine- to medium-grained, fairly well- sorted sand; sand is 80% clear to greenish, angular quartz, and 70% fresh glauconite; anhydrite pseudo- morphs after gypsum are common; foraminifers moderately abundant
		(60 percent)	sorted sand; sand is 80% clear to greenish, angular
		(serecut)	quartz, and 20% fresh glauconite; anhydrite pseudo-
		(80 cercent)	morphs after gypsum are common; foraminifers (20 perunt
		(00)	moderately abundant.
1	90-100		brown; sand is 90% quartzeoud
/		1	3
1	100-110	Clay -	greenish-brown, silty, moderately sandy,
		- Manakti-wi	pelecupod shell-fragments sand is generally fine gramed
			quartz with language glauconite, 3-5% fresh gypsum (3-5 percent
			and minor muscovite; a very few foraminifers.
	CALVERT	FORMATION (11	10-165') 5-10 percent pelcaport shell fraquents;
1	110-120	Clay -	gray, compact, slightly to moderately sandy,
			fee helt freguents; sand is fine, well-sorted,
			angular; 3 glauconite; gypsiferous ; a few shelf
V	120-130		angular; 3 glauconite; gypsiferous; a few shell (3-5 percent) frequents.
V	130-140		И
J	140-150		H

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; and 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 silt-stone; a few poorly proserved shell fragments; sand is medium-grained, moderately sorted; angular to subrounded, very clear quartz, bone and pelletal phosphorite; a few foraminifers (Nonion, Uvigerina) and poorly preserved shell fragments.

MATTAPONI FORMATION (170-200')

170-180

Sand - abundant matrix of green clay, locally yellowishgreen, yellow, and orange-brown; medium- to
coarse-grained, fairly well-sorted; 60% darkto 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

H

TUSCALOOSA FORMATION (200-2101)

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 sorteds quartz(50%), glauconite(40%) small amount of bone and nodular phosphorite; foraminifers common, but not abundant ;

220-230

, except:

medium- to very coarse-grained, fairly well-sorted (skewed fine); quartz(60%)glauconite(30%)

TRANSITIONAL 230-240

BEDS (230-270')

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

Rock Unit

0 - 10

10-150 110

110 150-170 165

16= 170-200 230

250 200 240

Columbia Group

Yarktown Formation

Calvert Formation Mattaòqni Formation

Tuccalooea Formation

Transitional Beds

Age

Plaistocene post - MIOCENE

Late Miocene

Middle Miocene

Paleocene - Late Cretacecus

Late Cretaceous

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

0-10

10 - 110

110-165

165-230

230-246

Columbia Droup Plentocomo Gorktown Form ton Microcone

Calvert Tomation Me taponi Sometion Poleocene-Late Culocone

Transtoned bede

Plentocome

Whitehard

Late Catarer

RH. Trolle

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 (0-101)

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

YORKTOWN FORMATION (10-1501)

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

slightly sandy; 5% pelecypod shell fragments, and a few small gastropods

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50-60	Clay -	cypod shell fragmer grained, well-sor	ery slightly sandy, ents; sand is fine- ted, angular; acces undant anhydrite ps	to very fine- sory muscovite
60-70		п		
70-80			moderately sandy; pelecypod shell fra	
80-90	Shell and	gray clay; 60% coadebris, 40% fine- sorted sand; sand quartz, and 20% fi	ely abundant matrix arse pelecypod-gas to medium-grained is 80% clear to gre resh glauconite; and sum are common; fo	tropod shell l, fairly well- eenish, angular hydrite pseudo-
90-100			clay is gray and gr brown; sand is 90% 10% glauconite	
100-110	Clay —	pelecypod shell fr fairly well-sorted quartz, with 10%	silty, moderately s agments; sand is g , angular; clear to glauconite, 3-5% fr vite; a very few for	enerally fine, greenish- esh gypsum,
110-120	Clay -	few shell fragmen	lightly to moderate its; sand is fine, we uconite; gypsiferou	ell-sorted,
120-130		tt		
130-140		11		
140-150		II-		

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 silt-stone; 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 (170-2001)

170-180

Sand - abundant matrix of green clay, locally yellowishgreen, yellow, and orange-brown; medium- to coarse-grained, fairly well-sorted; 80% darkto 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

11

TUSCALOOSA FORMATION (200-2401)

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

VDMR Well No. 2051

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-grain- ed, 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

	Rock Unit	Age
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 $1/16~\mathrm{mm}$.