INTERVAL SHEET

1926 1 $_{
m of}$ 1 Page VDMR Well No: Date rec'd: 8-9-67 Sample Interval: from 0 to: 243 PROP: N and W RR. Well # 210 Number of samples: COMP: Total Depth: 243 Isle of Wight COUNTY: Oil or Gas: Water: Exploratory: X 2.0 Mi. SE of Zuni 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 - 130 150 - 160 160 - 170 181 -185 -190 -200 -210 -220 _ 230 _ 240 -243 -

All intervals have both washed and unwashed samples

IW-C-11 NW-210

VDUR 1926

GELEV.: 60'
Goodogie Cog Strip Log -

INTERVAL SHEET

Page / of /

Date rec'd: 7/18/67

PROP:

COMP:

2.0 Miles S.E. of Zuni on NWRR.

(ZUNI SHEET)

COUNTY: Isle of Wight

VDMR Well No: WELL NO. 1926

Sample Interval: from 0 to 243

Number of samples: 24 33

Total Depth: 243

Oil or Gas: Water: Exploratory:

	UNW				
	From-To	From-To	From-To	From-To	
1					
	0 - 10	_	0 - 10	230 -	
	10 - 20	_	10 - 20	240-	
ALC: NO	20 - 30	ly -	20 - 30	243-	
	30 - 40	<u> </u>	30 - 40	_	
	40 - 50	3 -	40 - 50	_	
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	50 - 60	or -	50 - 60	_	
	60 - 70	.0 -	60 - 70	- 1	
	70 - 80	* -	70 - 80	_	
	80 - 90	1 - 1	80 - 90	-	
- 1	90 - 100	g _	90 - 100	-	
		↓			
	100 - 110	139 -	100 - 110	-	
	110 - 120	141 -	110 - 120		
	120 7 130	145 -	120 - 130		
	7	147 -	139 -	7	
	7	150 -	141 -	-	
	4				
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tops 160	160 - 170	174 -	147 -	_	
170	/I.S. /8/	176 -	150 -		
The 181	185 -	178 -	150 - 160	_	
	190 -	180 -	160 - 170	_	
	170	100	.,,,		
	200 -	111, 2	174 -	_	
	210 -	-	176 -	_	
	220 -	-	178 -	_	
230	230 -	-	180 -	_	JAZ
Kt4 -	NS 240 -	-	181 -		MILLE
				Ore	HILL
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111	-	-	190 -	-	
		- · · · · · · · · · · · · · · · · · · ·	200 -	-	
			210 -	-	
			220 -		

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VDMR Well No. 1926 County: Isle of Wight

Well: N. & W. R. R. Well # 210

Property: Norfolk and Western Railway

Driller:

Location: 2.0 miles SE of Zuni on Norfolk and Western right-of-way;

76° 48' 15" W, 36° 51' 15" N

Elevation: 60 feet Total Depth: 243 feet

Started drilling: October, 1966 Completed drilling: October, 1966 Sample description by: Robert H. Teifke, Virginia Division of Mineral

Resources, April, 1968

GEOLOGIC LOG *

Depth in feet

COLUMBIA GROUP (0-10')

0-10

Clay — orange-brown, subordinately light-gray, very sandy; sand is fine-grained, very well-sorted, angular; clear and iron-stained quartz, with accessory muscovite, magnetite, glauconite and feldspar

YORKTOWN FORMATION (10-160')

10-20

Shell and sand - moderately abundant matrix of silty gray clay; 50% coarse pelecypod shell fragments; 40% fine-grained, well-sorted, clear, angular quartz sand; subordinately bioclastic; traces of glauconite, muscovite, magnetite, hornblende; echinoid spines common, foraminifers abundant

20-30

30% coarse pelecypod shell fragments, 60% sand; a very few foraminifers

30-40	и	50% coarse pelecypod shell fragments, 40% sand; foraminifers moderately abundant
40-50	n n	20% pelecypod shell fragments, 70% sand; very slightly glauconitic; a few foraminifers
50-60	gray clay scaphopo grained, subangula	moderately abundant matrix of greenish- ; 60-70% very coarse pelecypod (-gastropod d) shell debris; 20-30% fine-to medium- fairly well-sorted sand; angular to cr clear quartz, with 5% dark-green e; foraminifers common, but not abundant
60-70	pelecypod grained, sorted; cl dark-gree	gray; moderately clayey; very coarse shell fragments; sand (20%) is medium-subangular to subrounded, fairly well-ear and greenish quartz, with 3-5% on glauconite; slightly gypsiferous; a foraminifers
70-80	n	trace of glauconite in sand fraction
80-90		***
90~100	sandy, 15 fine to n angular; dark-gree	rownish-gray, compact, moderately 2-20% pelecypod shell debris; sand is nedium-grained, fairly well-sorted, clear and greenish quartz, with 3-5% on glauconite and minor muscovite and foraminifers rare
110-120	sandy, 20 very fine- clear qua	greenish-gray, very silty, moderately % coarse shell debris; sand is fine-to-grained, wery well-sorted, angular; rtz, with minor amounts of glauconite, e, and gypsum; a few foraminifers, onion
120-130	u	30% coarse shell debris; anhydrite pseudomorphs after gypsum very abundant

130-150 No samples

150-160 Clay and shell - gray, silty, slightly sandy, 30% coarse pelecypod shell fragments; sand is fine-to medium-grained, fairly well-sorted; clear quartz, with a trace of glauconite; gypsum and anhydrite pseudomorphs after gypsum very abundant

CALVERT FORMATION (160-170')

Sand - abundant matrix of silty brown clay; 5% pelecypod shell fragments; medium -to coarse-grained, fairly well-sorted, angular to subangular; clear quartz with 5% bone and peletal phosphorite; foraminifers common, but not abundant

170-181 No sample

243

MATTAPONI FORMATION (181-2301)

Sand and sandstone — 50% clayey, silty, dolomitic, greenish-brown sand; 45% fine—to medium-grained, well-sorted, calcitic, very glauconitic sandstone; 5% small quartz pebbles; sand is fine—to coarse-grained, moderately sorted (skewed fine); sand fraction is 55% quartz, 35% dark—to light-green glauconite, and 10% bone and nodular phosphorite; foraminifers common

Sand - abundant matrix of drab, greenish-brown clay,
5% pelecypod shell fragments; fine-to coarsegrained, fairly well-sorted; sand fraction is 70%
medium-to light-green glauconite, 20% quartz,
and 10% brown nodular and bone phosphorite; a
few limestone fragments and very small quartz
pebbles; foraminifers common

abundant matrix of light-green clay; moderately pyritic

200 " abundant matrix of bluish-green clay; very pyritic

210	e .	abundant matrix of yellowish-green clay	
220	11	abundant matrix of yellowish-green clay; glauconite is dominantly blackish-green	
230	locally ligh	abundant matrix of dark-gray clay, nt-green; sand fraction is 95% fresh 5% quartz; minor phosphorite	
230-240	No sample		
TUSCALO	OSA FORMATION (240-2431)	
240	Sand and gravel - sparse matrix of gray clay; 60% generally coarse, variably decomposed, very glauconitic sand; 35% very fine-grained quartz gravel; abundant phosphate nodules and fish teeth		
243	11	75% gravel, 20% sand; gravel is coarser (up to 20 mm)	

^{*} The use of the lithologic term, "clay" includes all size ranges of particles less than 1/32 mm.

GEOLOGIC SUMMARY

Rock Unit

Age

0.0-10.0 Columbia Group
10.0-160.0 Yorktown Formation
Calvert Formation
170.0-181.0 No sample

181-243 181.0-230.0 Mattaponi Formation
230.0-240.0 No Sample
240.0-243.0 Tuscaloosa Formation

Pleistocene Late Miocene Middle Miocene

Paloocene-Late Cretaceous

Late Cretaceous

R. H. Tiefbe 3/3/12

VDMR Well No. 1926 County: Isle of Wight

Well: N. & W. R. R. Well # 210

Property: Norfolk and Western Railway

Driller:

Location: 2.0 miles SE of Zuni on Norfolk and Western right-of-way;

76° 48' 15" W, 36° 51' 15" N

Elevation: 60 feet Total Depth: 243 feet

Started drilling: October, 1966 Completed drilling: October, 1966 Sample description by: Robert H. Teifke, Virginia Division of Mineral

Resources, April, 1968

GEOLOGIC LOG *

Depth in feet

COLUMBIA GROUP (0-10')

0 - 10

Clay — orange-brown, subordinately light-gray, very sandy; sand is fine-grained, very well-sorted, angular; clear and iron-stained quartz, with accessory muscovite, magnetite, glauconite and feldspar

YORKTOWN FORMATION (10-160')

10-20

Shell and sand - moderately abundant matrix of silty gray clay; 50% coarse pelecypod shell fragments; 40% fine-grained, well-sorted, clear, angular quartz sand; subordinately bioclastic; traces of glauconite, muscovite, magnetite, hornblende; echinoid spines common, foraminifers abundant

20 - 30

30% coarse pelecypod shell fragments, 60% sand; a very few foraminifers

30 - 40	50% coarse pelecypod shell fragments, 40% sand; foraminifers moderately abundant
40-50	20% pelecypod shell fragments, 70% sand; very slightly glauconitic; a few foraminifers
50-60	Shell and sand - moderately abundant matrix of greenish-gray clay; 60-70% very coarse pelecypod (-gastropod-scaphopod) shell debris; 20-30% fine to medium-grained, fairly well-sorted sand; angular to subangular clear quartz, with 5% dark-green glauconite; foraminifers common, but not abundant
60-70	Shell and sand - gray; moderately clayey; very coarse pelecypod shell fragments; sand (20%) is medium-grained, subangular to subrounded, fairly well-sorted; clear and greenish quartz, with 3-5% dark-green glauconite; slightly gypsiferous; a very few foraminifers
70-80	trace of glauconite in sand fraction
80-90	11 11
90-100	Clay - gray to brownish-gray, compact, moderately sandy, 15-20% pelecypod shell debris; sand is fine- to medium-grained, fairly well-sorted, angular; clear and greenish quartz, with 3-5% dark-green glauconite and minor muscovite and gypsum; foraminifers rare
110-120	Clay and shell - greenish-gray, very silty, moderately sandy, 20% coarse shell debris; sand is fine-to very fine-grained, very well-sorted, angular; clear quartz, with minor amounts of glauconite, muscovite, and gypsum; a few foraminifers, mostly Nonion
120-130	30% coarse shell debris; anhydrite pseudomorphs after gypsum very abundant

130-150 No samples

150-160 Clay and shell - gray, silty, slightly sandy, 30% coarse pelecypod shell fragments; sand is fine- to medium-grained, fairly well-sorted; clear quartz, with a trace of glauconite; gypsum and anhydrite pseudomorphs after gypsum very abundant

CALVERT FORMATION (160-170')

Sand - abundant matrix of silty brown clay; 5% pelecypod shell fragments; medium-to coarse-grained, fairly well-sorted, angular to subangular; clear quartz with 5% bone and peletal phosphorite; foraminifers common, but not abundant

170-181 No sample

MATTAPONI FORMATION (181-230')

Sand and sandstone — 50% clayey, silty, dolomitic, greenish-brown sand; 45% fine--to medium-grained, well-sorted, calcitic, very glauconitic sandstone; 5% small quartz pebbles; sand is fine--to coarse-grained, moderately sorted (skewed fine); sand fraction is 55% quartz, 35% dark--to light-green glauconite, and 10% bone and nodular phosphorite; foraminifers common

Sand - abundant matrix of drab, greenish-brown clay,
5% pelecypod shell fragments; fine--to coarsegrained, fairly well-sorted; sand fraction is 70%
medium--to light-green glauconite, 20% quartz,
and 10% brown nodular and bone phosphorite; a
few limestone fragments and very small quartz
pebbles; foraminifers common

190 " abundant matrix of light-green clay; moderately pyritic

200 " abundant matrix of bluish-green clay; very pyritic

210	abundant matrix of yellowish-green clay		
220	abundant matrix of yellowish-green clay; glauconite is dominantly blackish-green		
230	Sand - moderately abundant matrix of dark-gray clay, locally light-green; sand fraction is 95% fresh glauconite, 5% quartz; minor phosphorite		
230-240	No sample		
TUSCALO	OSA FORMATION (240-243')		
240	Sand and gravel - sparse matrix of gray clay; 60% generally coarse, variably decomposed, very glauconitic sand; 35% very fine-grained quartz gravel; abundant phosphate nodules and fish teeth		
243	75% gravel, 20% sand; gravel is coarser (up to 20 mm)		

^{*} The use of the lithologic term, "clay" includes all size ranges of particles less than 1/32 mm.

GEOLOGIC SUMMARY

	Rock Unit	Age
0.0-10.0	Columbia Group	Pleistocene
10.0-160.0	Yorktown Formation	Late Miocene
160.0-170.0	Calvert Formation	Middle Miocene
170.0-181.0	No sample	
181.0-230.0	Mattaponi Formation	Paleocene
230.0-240.0	No Sample	
240.0-243.0	Tuscaloosa Formation	Late Cretaceous

Well: 1W-C-11 (45GS) Property: Norfolk and Western Rollway Driller: Location: 2.0 miles SE of Zuni on Norfolk and Western right-of-way; 76°48'15" W., 36°51'15" N. Elevation : (60') Total Depth : 243 Started drilling: - Completed drilling: -Sample description by : R. H. Teitke, Virginia Division of Mineral Resources References : No specific reference GEOLOGIC SUMMARY Depth (feet) Formation (and remarks) Thickness (feet) 10,0-10,0 Columbia Group 10.0 Yorktown Formation 10.0-160.0 150.0 Colvert Formotion 10.0 100.0-170.0 No sample & Former 170.0 - 181.0 11.0 Mattaponi Formation 181.0-230.D 49.0 No sample. 230.0-240.0 10.0 240.0-243.0 3.0 Hos collanding francisco francis

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GEOLOGIC LOG

Thickness (feet) Depth (feet)

Description

COLUMBIA GROUP (0.0 - 10.6')

Clay - ownge - brown , subordenately light - guy , 0.0-10.0 very sandy; sand is fine-grained, very well- sorted, angular; clear and nonstomed graity, with accessory muscoute, magnetite, glaucomite and feldspor.

YORKTOWN FORMATION (10. \$ - 160. \$)

Shell and Sand - moderately abundant matrix coarse of selly gray along; 60% pelicypod skell 10.0-20. p 10.0

fragmente; 40% fine-gramed, wellsubordenately bioclastic ; haces of

glemeonte, succourte, magnetite, hora-

blende; echnoid spines common , foromimpers abundant.

" 35% come pelecypod shell fragmente, 65% sand; a very few foraminifers.

60% coarse pelecypod shell feogrante, 40% sand ; forminifers moderately abundant.

very slightly glacicometre ; a few foramimplees.

20.0

30.0-40.0

10.0

10.0

10.0

Shell and Land - moderately abundant matrix 50.0-60.0 10.0 of greenish - gray clay is 60-70% very coaise pelecypod (-gastropod - scaphopod) grained, fairly well-sorted rand; anyular to subongular clear quarty, with 5% dack-quer glavromte; foramenifers common, but not abundant. 60.0-70.0 shell - matrix of moderately clayer gray rand; 10.94 very coarse pelecypool shell frequents, with about 20% clayey sand; sand as reduin grand, sulvagular to subrounded & fairly well-sorted ; clear and greenest quoity, with 3-5% dack-guen glaceonite; slightly gypseferous; a very few forominifers. " Trace of glaveoute in sand fraction. 70.6-80.6 10.6 80.b-90.d 10. 8 90.0-100.0 Clay - gray to brownik- gray, compact, moder-10.0 ately sandy > 15-20% pelegypool stell debris; sand is fine - to medium - grained, fairly well-soited , angular ; clear and greensh quarty, with 3-5% doch green glacomte and musor mussoule and magnetite; moderately gyperferous; forominifers common. Clay - gray, very selty and sandy , a few shell fragments; abundant course-grained 100.0-110.0 10.0 selt to very fine-ground soul, very well-sorted, argulor; dear quarty, with 3-5 % glacecourte and minor museovite and gypsum; foromnifers rare.

Clay - greenih-gray, very selly, moderably 110.6-120.0 10.0 sandy, 20% coarse shell debries; sand sorted, angular juneor amounts of glaucomite, muscovile, and gypsum ; a few foromenters, mostly Nonion. 30% coarse shell debrew; white clay prendo-120.0-130.6 morphs after gypsum very obendant. Do samples. 130.b - 150, b 20.0 150.4-160.6 Clay - gray, selly, elightly sandy, 30% coarse pelecypod shell fragments; sand is fine - to medium - grained , fairly well-soiled; slear greaty, with a trace of glamonte; gypsum and white clay pseudomorphs after zypsum very abundant. CALVERT FORMATION (160.0 - 170.0') Sand - ahundant matrix of selly brown 160.0-170.0 10.0 clay, 5% pelecypod shell fragments ; medicine to coaise grained, fairly wellsorted , augular to subangular; clear quarty with 5% book and pelletal phorphonte; foramempers common, but not abundant. 1. o No sample.

FORMATION (181. 6-230.6) MATTAPONI Sand and Sandstone - 50% clayey, selly, 181.0 dolomitic grunish - brown sand; 50% fine - to medium - growed, well-sorted, calcities, very glavevnitic sandstone; a few small quoity publies; sand is fine - to coarse - grained, moderately sorted (exerced fine); 55% guarty, 35% dark to light-gues glauconite, 10% bone and nodular phosphorite; foraminifers common. 185.0 faul - abundant matrix of deal, greenich - brown day , 5 % peleupped shell fragments; fine to coace gamed, facily well-sorted; 70% medicin- 6 light-guen glacconite, 20% guarte, 10% brown modular and bone plusphosite; a few linestone fragments and very small grante, pebbles; foraminipers common. " abundant matrix of light-quenclay ; 190.0 moderately pyritis. " obundant matrik of bluish-green clay; 200.0 abundant matrix of yellowish - green stay. 210.0 " dobrandant matril of yellowish-green day 5 glaveswite is dominantly blackish green. 220,0 Sand - moderately abundant matrix of dock-gray clay, locally light-green; 95% fresh glaucomete, 5% guarte, minin phosphorite. No sample.

TUSCALOOSA FORMATION (240. 4-243. 6) Sand and Bravel - space matrix of gray 270.0 clay ; 60% generally coarse, my glaceration, variably decomposed sivery glauconitie rand ; 40% very fine -/M grained quarty grovel; abundant phosphate nodules and fish teeth. " 80% gravel, 20% coul; grovel is course (up to 20 mm.) 243,6

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