

INTERVAL SHEET

WWCR 154

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VDMR Well No: Well No. 1421

Date 11/22/65

Sample Interval: from 0 to 420

PROP: Sydnor Pump & Well Co.  
(White Oak Subdivision)

Total Depth 425

COMP: Sydnor Pump & Well Co.

Oil    Gas    Water     Exploratory   

COUNTY: James City (Williamsburg)

Cuttings  Core    Other   

VDMR Well No: W-1421

From-To	From-To	From-To	From-To	From-To
0 - 10	300 - 310	-	-	-
10 - 20	310 - 320	-	-	-
20 - 30	320 - 330	-	-	-
30 - 40	330 - 340	-	-	-
40 - 50	340 - 350	-	-	-
50 - 60	350 - 360	-	-	-
60 - 70	360 - 370	-	-	-
70 - 80	370 - 380	-	-	-
80 - 90	380 - 390	-	-	-
90 - 100	390 - 400	-	-	-
100 - 110	400 - 410	-	-	-
110 - 120	410 - 420	-	-	-
120 - 130	420 - 425 No sample	-	-	-
130 - 140	-	-	-	-
140 - 150	-	-	-	-
150 - 160	-	-	-	-
160 - 170	-	-	-	-
170 - 180	-	-	-	-
180 - 190	-	-	-	-
190 - 200	-	-	-	-
200 - 210	-	-	-	-
210 - 220	-	-	-	-
220 - 230	-	-	-	-
230 - 240	-	-	-	-
240 - 250	-	-	-	-
250 - 260	-	-	-	-
260 - 270	-	-	-	-
270 - 280	-	-	-	-
280 - 290	-	-	-	-
290 - 300	-	-	-	-

OWNER: Sydnor Pump & Well Co., Inc.  
(White Oak Subdivision)  
DRILLER: Sydnor Pump & Well Co., Inc.  
COUNTY: James City (Williamsburg)

VDMR: #1421  
WWCR: # 154  
TOTAL DEPTH: 425'

GEOLOGIC LOG

COLUMBIA GROUP (0-40')

- 0-10 Sand -- pale orange-brown, moderately argillaceous (mottled clay); medium grained, fairly well sorted, subangular to subrounded; small amount of magnetite; scattered muscovite flakes
- 10-20 Sand -- deep orange-brown (thoroughly iron-stained); medium to very coarse-grained, well sorted (skewed coarse), subrounded; about 5% white microcline; traces of epidote and hornblende
- 20-30 Sand -- buff, clean; coarse to very coarse grained, well sorted, subrounded; a very small amount of dull white feldspar; a few grains of glauconite and brown epidote
- 30-40 Sand -- orange-brown; coarse to very coarse grained, well sorted, subrounded to rounded; scattered grains of dull white feldspar, partially decomposed glauconite, phosphorite, and brown and green epidote; about 5% shell material (pelecypods, bryozoans, and echinoid spines)

YORKTOWN FORMATION (40-140')

- 40-50 Sand and Shell -- buff; 60% medium-grained, very well sorted, subangular to subrounded sand; 40% shell fragments, mostly pelecypods, but some corals and echinoid spines; traces of magnetite, glauconite, and brown epidote
- 50-60 Shell -- gray; pelecypod shell debris (up to 10 mm) with a few fragments of Turritella and scaphopods; small amount of medium-grained sand and granules
- 60-70 Shell and Sand -- gray, slightly argillaceous, a few small pebbles; about 65% coarse pelecypod shell debris; about 35% fine- to medium-grained, well sorted, subangular sand; very slightly glauconitic and phosphoritic; traces of hornblende and garnet
- 70-80 "
- 80-90 " but shell and sand in subequal amounts

- 90-100 Sand -- gray, with greenish cast, very argillaceous; fine grained, well sorted, angular; very slightly glauconitic and phosphoritic; about 5% pelecypod shell fragments, echinoid spines, and bits of phosphatic vertebrate bone and teeth; slightly diatomaceous
- 100-110 " more diatomaceous
- 110-120 Sand and Shell -- moderately argillaceous; 50% pelecypod shell debris; 50% very fine- to fine-grained, fairly well sorted, angular to subangular sand; small amount of platy phosphorite; traces of epidote and tourmaline
- 120-130 Silt and Shell -- greenish-gray, very argillaceous; 60-70% coarse-grained, well sorted, angular silt; traces of glauconite, epidote, and tourmaline; 30-40% coarse shell debris, mostly pelecypods, a few echinoid spines, bryozoans, and fish teeth; a few foraminifera and ostracods; a trace of diatoms
- 130-140 " --but coarser and more poorly sorted (very coarse-grained silt to very fine-grained sand)
- CALVERT FORMATION (140-230')
- 140-150 Silt and Shell -- greenish-gray, very argillaceous; 60-70% coarse-grained, well sorted, angular silt to very fine-grained sand; traces of glauconite, phosphorite, epidote and chloritoid; 30-40% coarse shell debris, mostly pelecypods, a few scaphopods, echinoid spines, and fish teeth; a few foraminifera and ostracods; trace of diatoms
- 150-160 "
- 160-170 Clay and Shell -- greenish-gray, very silty; 30-40% coarse shell debris, mostly pelecypods and scaphopods; traces of glauconite, phosphorite, epidote, garnet, and pyrite; a few foraminifera; a trace of diatoms
- 170-180 Shell and Clay -- greenish-gray, silty and sandy; about 60% coarse pelecypod shell debris, with some echinoid spines; about 40% silty and sandy clay; traces of glauconite and zircon; minor amount of limonitic clay; trace of diatoms
- 180-190 Shell and Clay -- greenish-brown, very silty, slightly sandy, a few small pebbles; 65-75% coarse pelecypod shell debris; 25-35% silty clay; a few foraminifera

- 190-200 Shell and Clay -- greenish-brown, very silty, slightly sandy, a few small pebbles; 65-75% coarse pelecypod shell debris; 25-35% silty clay; a few foraminifera; trace of diatoms
- 200-210 Clay and Shell -- greenish-brown, silty; about 70% clay; traces of glauconite, and pyrite; about 30% coarse pelecypod shell fragments; a few foraminifera, and scattered needles of aragonite
- 210-220 Sand and Shell -- greenish-brown, very argillaceous; 70-80% fine- to coarse-grained, poorly sorted, subangular to subrounded sand; small amount of phosphorite; trace of glauconite; 20-30% coarse pelecypod shell fragments; a very few foraminifera, and scattered needles of aragonite
- 220-230 "
- NANJEMOY FORMATION (230-280')
- 230-240 Limestone and Sand -- bioclastic, arenaceous, quartz-glauconite-goethite after glauconite; grayish-brown; small amounts of phosphorite, glauconite, and limonite after glauconite; traces of pyrite and acicular aragonite; about 5% pelecypod shell fragments; a very few foraminifera; limited pyritization of glauconite
- 240-250 Sandstone -- brownish- to yellowish, calcareous quartz-glauconite-goethite sandstone (goethite after glauconite); some coarse pelecypod shell fragments; trace pyrite; unusually large pellets (about 2mm) of goethite and quartz granules
- 250-260 " with black, micaceous, autochthonous glauconite in white friable, carbonate matrix (weak glauconitic limestone); bryozoans and fish teeth
- 260-270 Sand and Sandstone -- dark greenish-brown, argillaceous; about 75% fine- to coarse-grained, rather poorly sorted sand; about 10% fresh glauconite, 40% hydrous-iron-oxides after glauconite, and 50% brown, iron-stained quartz; about 25% brownish-gray to white, calcareous quartz-glauconite-limonite sandstone (glauconite much less oxidized than in unconsolidated sand); a very few pelecypod shell fragments; brown-sand, carbonaceous, clayey; forams common
- 270-280 "

MATTAPONI FORMATION (280-350')

- 280-290 Sand -- dark gray, argillaceous; medium to coarse grained, well sorted; 75-80% fresh to slightly oxidized glauconite, and 20-25% poorly sorted, subangular to subrounded quartz; a very few foraminifera
- 290-300 Sand -- medium gray, very argillaceous; medium to coarse grained, well sorted; 50% fresh to slightly oxidized glauconite, and 50% poorly sorted, subangular to subrounded quartz; a very few foraminifera
- 300-310 Sand -- dark gray, argillaceous (gray clay - 90%, pink clay - 10%); medium to coarse grained, moderately sorted; about 85% fresh glauconite, and 15% quartz; trace of pyrite; a few chalky shell fragments and a very few foraminifera
- 310-320 "
- 320-330 "
- 330-340 "
- 340-350 "

PATUXENT FORMATION (350-420')

- 350-360 Sand -- gray, moderately argillaceous, 5-10% fine gravel; very fine to medium grained, moderately sorted; 65-75% quartz, 25-35% glauconite; scattered grains of muscovite, goethite-limonite after glauconite, and brown epidote; a few pelecypod shell fragments, and fragments of pink clay and calcareous, quartz-glauconite sandstone
- 360-370 Gravel and Sand -- brownish gray; 50% rounded quartz gravel (up to 12 mm); 50% coarse to very coarse grained, moderately sorted sand, 30-40% glauconite, 60-70% quartz; traces of pyrite, muscovite, and plant remains
- 370-380 Sand -- black, slightly argillaceous, a few rounded pebbles; fine to coarse grained, rather poorly sorted; 50% each of glauconite and quartz; a few shell fragments, echinoid spines, and foraminifera
- 380-390 Sand and Gravel -- gray, argillaceous; 20% subrounded to rounded quartz gravel; 80% very fine- to very coarse-grained, poorly sorted sand; 20-30% glauconite and 70-80% quartz; minor chert and feldspar; traces of muscovite and garnet; a very few foraminifera and plant fragments

390-400 Sand and Gravel -- gray, argillaceous; 20% subrounded to rounded quartz gravel; 80% very fine- to very coarse-grained, poorly sorted sand; 20-30% glauconite and 70-80% quartz; minor chert and feldspar; traces of muscovite and garnet; a very few foraminifera and plant fragments

400-410 "

410-420 Clay and Sandstone -- gray clay containing abundant quartz-glauconite sand, and subordinate pink glauconite-bearing clay; yellowish to white, calcareous, quartz-glauconite sandstone; small amount of shell fragments

420-425 No Sample

GEOLOGIC SUMMARY

<u>Thickness</u>	<u>Rock Unit</u>	<u>Age</u>
0-40'	Columbia Group	Pleistocene
40-140'	Yorktown Formation	Late Miocene
140-230'	Calvert Formation	Middle Miocene
230-280'	Nanjemoy Formation	Middle Eocene
280-350'	Mattaponi Formation	Paleocene
350-420'	Patuxent Formation	Early Cretaceous
420-425'	No Sample	

Virginia Division of Mineral Resources  
Robert H. Teifke, Geologist  
December 6, 1965  
Revised March, 1972

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DRILLER: Sydnor Pump & Well Co., Inc.  
COUNTY: James City (Williamsburg)

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TOTAL DEPTH: 425'

GEOLOGIC LOG

Depth in feet

✓ COLUMBIA GROUP (0-40')

- 0-10 Sand - pale orange-brown, moderately argillaceous (mottled clay); medium grained, fairly well sorted, subangular to subrounded; small amount of magnetite; scattered muscovite flakes
- 10-20 Sand - deep orange-brown (thoroughly iron-stained); medium to very coarse-grained, well sorted (skewed coarse), subrounded; about 5% white microcline; traces of epidote and hornblende
- 20-30 Sand - buff, clean; coarse to very coarse grained, well sorted, subrounded; a very small amount of dull white feldspar; a few grains of glauconite and brown epidote
- 30-40 Sand - orange-brown; coarse to very coarse grained, well sorted, subrounded to rounded; scattered grains of dull white feldspar, partially decomposed glauconite, phosphorite, and brown and green epidote; about 5% shell material (pelecypods, bryozoans, and echinoid spines)

✓ <sup>AND CALVERT</sup> YORKTOWN FORMATION <sup>S</sup> (40-140') (40-230')

- 40-50 Sand and Shell - buff; 60% medium-grained, very well sorted, subangular to subrounded sand; 40% shell fragments, mostly pelecypods, but some corals and echinoid spines; traces of magnetite, glauconite, and brown epidote
- 50-60 Shell - gray; pelecypod shell debris (up to 10 mm) with a few fragments of Turritella and scaphopods; small amount of medium-grained sand and granules
- 60-70 Shell and Sand - gray, slightly argillaceous, a few small pebbles; about 65% coarse pelecypod shell debris; about 35% fine-to medium-grained, well sorted, subangular sand; very slightly glauconitic and phosphoritic; traces of hornblende and garnet
- 70-80 "
- 80-90 " shell and sand in subequal amounts

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- 90-100 Sand - gray, with greenish cast, very argillaceous; fine grained, well sorted, angular; very slightly glauconitic and phosphoritic; about 5% pelecypod shell fragments, echinoid spines, and bits of phosphatic vertebrate bone and teeth; slightly diatomaceous
- 100-110 " more diatomaceous
- 110-120 Sand and Shell - moderately argillaceous; 50% pelecypod shell debris; 50% very fine- to fine-grained, fairly well sorted, angular to subangular sand; small amount of platy phosphorite; traces of epidote and tourmaline
- 120-130 Silt and Shell - greenish-gray, very argillaceous; 60-70% coarse-grained, well sorted, angular silt; traces of glauconite, epidote, and tourmaline; 30-40% coarse shell debris; mostly pelecypods, a few echinoid spines, bryozoans, and fish teeth; a few foraminifera and ostracods; a trace of diatoms
- 130-140 " coarser and more poorly sorted (very coarse-grained silt to very fine-grained sand)

CALVERT FORMATION (140-210')

- 140-150 Silt and Shell - greenish-gray, very argillaceous; 60-70% coarse-grained, well sorted, angular silt to very fine-grained sand, traces of glauconite, phosphorite, epidote, and chloritoid; 30-40% coarse shell debris, mostly pelecypods, a few scaphopods, echinoid spines, and fish teeth; a few foraminifera and ostracods; trace of diatoms
- 150-160 "
- 160-170 Clay and Shell - greenish-gray, very silty; 30-40% coarse shell debris, mostly pelecypods and scaphopods; traces of glauconite, phosphorite, epidote, garnet, and pyrite; a few foraminifera; a trace of diatoms
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CHICKAHOMINY FORMATION (210-230')

- 210-220 Sand and Shell - greenish-brown, very argillaceous; 70-80% fine- to coarse-grained, poorly sorted, subangular to subrounded sand; small amount of phosphorite; trace of glauconite; 20-30% coarse pelecypod shell fragments; a very few foraminifera, and scattered needles of aragonite
- 220-230 "

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- 230-240 Limestone and Sand - bioclastic, arenaceous, quartz, glauconite, goethite after glauconite, grayish-brown; small amounts of phosphorite, glauconite, and limonite after glauconite; traces of pyrite and acicular aragonite; about 5% pelecypod shell fragments; a very few foraminifera; limited pyritization of glauconite
- 240-250 Sandstone - brownish to yellowish, calcareous quartz-glauconite-goethite sandstone (goethite after glauconite); some coarse pelecypod shell fragments; trace pyrite; unusually large pellets (about 2 mm) of goethite and quartz granules (after glauconite?)
- 250-260 " black, medium-grained, autochthonous glauconite in white, friable, carbonate matrix (weak glauconitic limestone); bryozoans, fish teeth

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- 420-425 No sample

GEOLOGIC SUMMARY

<u>Rock Unit</u>	<u>Age</u>
0-40'	Pleistocene
40-140' -230	<u>Late Miocene</u>
<u>140-210'</u>	<u>Middle Miocene</u>
<u>210-230'</u>	<u>Late Eocene</u>
230-280'	<u>Middle Eocene</u>
280-350'	Paleocene - <i>Late Cretaceous</i>
350-420' <sup>s</sup>	Early Cretaceous
<u>420-425'</u>	<u>No sample</u>

R. H. Teifke  
3/1/72

Virginia Division of Mineral Resources  
Robert H. Teifke, Geologist  
December 6, 1965