VIRGINIA DIVISION OF MINERAL RESOURCES
Box 3667, Charlottesville, VA 22903

# INTERVAL SHEET

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C 148
Well Repository No: 3546

Date rec'd:5-15-72 Date Processed: 6-6-72

Sample Interval: from 0 to:337'

PROPERTY: Sydnor Hydrodynamics (Robin Wood Sub.)

Number of samples: 33

COMPANY: Sydnor Hydrodynamics

Total Depth: 337'

COUNTY: Hanover

Oil or Gas: Water: x Exploratory:

| From-To | From-To | From-To | From-To |
|---|---|---|---|
| 0 - 10 | 250 - 60 | - | - |
| 10 - 20 | 260 - 70 | - | - |
| 20 - 30 | 270 - 80 | - | - |
| 30 - 40 | 280 - 90 | - | - |
| 40 - 50 | 290 - 300 | - | - |
| 50 - 60 | 300 - 10 | - | - |
| 60 - 70 | 310 - 20 | - | - |
| 70 - 80 | 320 - 30 | - | - |
| 80 - 90 | 330 - 37 | - | - |
| 90 - 100 | - | - | - |
| 100 - 10 | - | - | - |
| 110 - 20 | - | - | - |
| 120 - 30 | - | - | - |
| - | - | - | - |
| 140 - 50 | - | - | - |
| 150 - 60 | - | - | - |
| 160 - 70 | - | - | - |
| 170 - 80 | - | - | - |
| 180 - 90 | - | - | - |
| 190 - 200 | - | - | - |
| 200 - 10 | - | - | - |
| 210 - 20 | - | - | - |
| 220 - 30 | - | - | - |
| 230 - 40 | - | - | - |
| 240 - 50 | - | - | - |

All intervals have both washed and unwashed samples

OWNER: Sydnor Hydrodynamics
(Robin Wood Sub.)
DRILLER: Sydnor Hydrodymics
COUNTY: Hanover

W#: 3546
C#: 148
TOTAL DEPTH: 337'
QUAD: Yellow Tavern

GEOLOGIC LOG

| Depth (feet) | |
|---|---|
| 0 - 10 | Clay -- light brown; moderate sand; fine to medium grained; subangular to subrounded; moderately well sorted; quartz; feldspar; few opaques. |
| 10 - 20 | Sand -- light brown; moderate clay; fine to medium grained, some coarse grains; subangular to subrounded; moderately well sorted; quartz; feldspar; few opaques. |
| 20 - 30 | Sand -- pale yellowish orange; moderate clay - pale yellowish orange, light brown, white; fine to coarse grained, few granules; subangular to subrounded; moderately sorted; quartz; feldspar; few opaques. |
| 30 - 40 | As above except medium grained to granular, 3% pebbles; poorly sorted. |
| 40 - 50 | Sand and granules - pale yellowish orange; slightly clayey; coarse to very coarse grained,, 50% granules, some pebbles; subrounded; moderately sorted; quartz; feldspar. |
| 50 - 60 | Granules -- dark yellowish orange; moderate clay; some fine to coarse grained sand, some pebbles; subrounded; well sorted; quartz; feldspar; some ferricrete. |
| 60 - 70 | Sand -- olive light gray; abundant clay - olive light gray, dark yellowish orange; fine grained, some medium grains, 25% granules; subangular to subrounded; poorly sorted; quartz; feldspar (granules); some ferricrete; few flakes of muscovite; few opaques. |
| 70 - 80 | Sand -- olive light gray; moderate clay; fine grained, 10% granules; subangular to subrounded; moderately well sorted; quartz; feldspar (granules); some muscovite; few black phosphatic fragments; biotite. |
| 80 - 90 | Sand -- olive gray; moderate clay; fine grained, some granules, some pebbles; subangular to subrounded; moderately well sorted; quartz; 10% shell fragments; some black phosphatic material; few flakes of muscovite. |
| 90 - 100 | Clay and gravel -- olive light gray; abundant very fine grained sand, subangular to subrounded; poorly sorted; quartz; feldspar (pebbles); 10% shell fragments inc. gastropods; few black phosphatic fragments; muscovite. |

| Depth (feet) | |
|---|---|
| 100 - 110 | As above except 5% shell fragments. |
| 110 - 120 | As above plus some medium grains; few grains of glauconite. |
| 120 - 130 | As above except slightly sandy. |
| 130 - 140 | No sample. |
| 140 - 150 | Clay -- medium light gray; slightly sandy; fine to coarse grained, some granules; subangular to subrounded; moderately sorted; quartz; some black phosphatic material; few shell fragments. |
| 150 - 160 | Sand and clay -- olive light gray; moderate clay; abundant sand; fine to medium grained; subangular to rounded; moderately well sorted; quartz; 15% glauconite; some muscovite; some shell fragments. |
| 160 - 170 | Sand -- olive light gray; moderate clay; fine grained, some granules; subangular to subrounded; well sorted; quartz; some muscovite; some limestone fragments; some glauconite; few shell fragments; few black phosphatic fragments. |
| 170 - 180 | Clay -- yellowish gray, very light gray; abundant fine to medium grained sand; subangular to subrounded; moderately well sorted; quartz; 2% glauconite; some limestone gragments; some black phosphatic material; some shell fragments; muscovite. |
| 180 - 190 | Sand -- olive gray; abundant clay; fine grained; subangular to rounded; well sorted; quartz; 10% glauconite; some muscovite; some shell fragments; forams (inc. Robulus); few black phosphatic fragments. |
| 190 - 200 | As above plus some medium grains, some coarse grains; moderately well sorted. |
| 200 - 210 | As above except 20% glauconite; 10% shell fragments; no forams. |
| 210 - 220 | As above except 25% shell fragments. |
| 220 - 230 | As above. |
| 230 - 240 | Gravel -- off white; moderate sand; coarse grained to granular; sub-rounded; poorly sorted; quartz; feldspar; 2% shell fragments; some glauconite. |
| 240 - 250 | Sand and gravel -- off white; coarse grained to granular, 50% pebbles; angular to subrounded; poorly sorted; quartz; feldspar; some glauconite; few shell fragments. |

| Depth (feet) | |
|---|---|
| 250 - 260 | As above except 60% pebbles. |
| 260 - 270 | Sand -- yellowish gray; coarse grained to gravel; subrounded; poorly sorted; quartz; feldspar; few shell fragments; glauconite. |
| 270 - 280 | Sand and gravel -- off white; coarse grained to granular, 50% pebbles; subrounded; poorly sorted; quartz; feldspar; some glauconite. |
| 280 - 290 | Gravel -- off white; some very coarse grains, some granules; subrounded; moderately sorted; quartz; feldspar; some glauconite. |
| 290 - 300 | As above except moderate sand; coarse grained to granular; few grains of glauconite. |
| 300 - 310 | As above except slightly sandy. |
| 310 - 320 | Sand and gravel -- off white; very coarse grained to granular, 50% pebbles; subrounded; poorly sorted; quartz; feldspar; few grains of glauconite. |
| 320 - 330 | Sand -- off white; coarse grained to granular, 10% pebbles; subrounded; moderately sorted; quartz; feldspar; some glauconite; few flakes of muscovite. |
| 330 - 337 | Gravel -- multicolored; some granules; angular to subrounded; moderately sorted; quartz; feldspar. |

Logged by: Michael T. Currie
Jan. 24, 1979

OWNER: Sydnor Hydrodynamics, Inc. (Robin Ridge Sub.) W-3546
DRILLER: Sydnor Hydrodynamics, Inc. C-143
COUNTY: Hanover TOTAL DEPTH: 337'

GEOLOGIC LOG

| Depth in feet | |
|---|---|
| COLUMBIA GROUP (0-60') | |
| 0-10 | Silt and Sand - silt to fine-grained sand, abundant matrix of brick-red clay, non-clay fraction well sorted |
| 10-20 | Sand and Silt - silt to fine-grained sand; sparse binder of multi-colored clay (orange, yellow, tan); well sorted |
| 20-30 | Sand - tan, sparse binder and some discrete laminae of tan and white clays; fine- to very fine-grained with pockets and laminae of coarser, slightly feldspathic sand; blue quartz common in coarse laminae |
| 30-40 | " |
| 40-50 | Sand - tan, grades into granule gravel (10%), fine- to very coarse-grained, poorly sorted, blue quartz and decomposed feldspar common, a few rock fragments and accessory minerals |
| 50-60 | Gravel and Clay - 70-80% well-sorted granule gravel, mainly subrounded to rounded quartz and decomposed feldspar; 20-30% orange-brown silty clay; ferricrete common |
| CALVERT FORMATION (60-150') | |
| 60-70 | Sand - gray, with brown mottles; sparse binder of gray clay; 10% well-sorted granule gravel (caving?); very fine grained, very well sorted, angular; micas, feldspar, and minute shell fragments present |
| 70-80 | Sand - gray, with very sparse clay binder; 10% granule gravel (caving?); very fine-grained, very well sorted; muscovite common |
| 80-90 | " , except: more clayey, with about 5% chalky shell fragments, including Turritella |
| 90-100 | Sand and Silt - brownish-gray, with sparse clay binder; 10% granule gravel (caving?); silt to very fine grained sand, very well sorted; about 5% chalky shell fragments |

100-110 Sand and Silt - brownish-gray, with sparse clay binder; 10% granule gravel (caving?), silt to very fine grained sand, very well sorted; about 5% chalky shell fragments

110-120 ", except: fairly clayey and coherent, with pale-orange mottling common

120-130 Clay - light-gray, mottled orange; uniformly silty (fine silt), with about 5% granule gravel; subordinate laminae of dark-gray to greenish-gray coarse silt to fine-grained sand; a few diatoms and chalky shell fragments

130-140 No sample

140-150 Clay - light-gray, papery, slightly silty, with laminae of greenish-gray clayey and silty sand; about 5% chalky shell fragments, trace of diatoms, and fragmental phosphorite

NANJEMOY FORMATION (150-180')

150-160 Sand - abundant matrix of gray to greenish-gray clay, a few small pebbles and chalky shell fragments; fine-grained, moderately sorted; moderately glauconitic and micaceous; trace of phosphorite

160-170 Silt and Sand - moderately abundant matrix of gray clay; coarse silt to very fine-grained sand, very well-sorted, about 5% glauconite, 5% muscovite; traces of shell and fragmental phosphorite

170-180 Clay - very light-gray, slightly mottled brownish-orange; silty, contains some sand-size green glauconite; numerous interlaminations of gray-green to olive-green clayey glauconitic silt to fine sand; slightly micaceous, minor amount of coarse-grained secondary phosphorite

MATTAPONI FORMATION (180235')

180-190 Sand - dark-gray, silty, slightly clayey, locally a calcitic glauconite-bearing siltstone; fine- to very fine-grained, well-sorted; clear and greenish angular quartz with 10-15% light- to dark-green glauconite and 2-3% mica; a few foraminifers (including Robulus sp.), shell fragments (including Turritella sp.), and bone fragments

190-200 Sand - dark brownish-gray, slightly clayey, a very few chalky shell fragments; silt to very fine-grained sand, very well-sorted; clear and greenish angular quartz with 10-15% green glauconite, including 3-5% 1 mm polylobate aggregates; a very few Robulus sp.

200-210 Sand and Silt - As above, except: with 10% chalky shells and shell fragments, mainly molluscan - pelecypods and Turritella sp.

210-220 As above, except: with 35-40% chalky shells and shell fragments, mainly pelecypods and Turritella sp., and a few solitary corals fish teeth, and vertebrae

220-230 As above, except: with 40-45% chalky shell material and a few vertebrate remains; small pockets of carbonaceous matter are common

PATUXENT FORMATION (235-337') Top of formation defined on basis of other information.

230-240 Gravel and Sand - tan, no clay; about 50% medium- to very-coarse-grained subrounded sand; about 50% fine-grained (2-10 mm) rounded gravel; sand is slightly glauconitic and feldspathic; gravel consists of several quartz types, rock fragments, and a little feldspar

240-250 Sand and Gravel - tan, slightly clayey; 70% coarse-grained, well-sorted, subrounded sand; 30% fine-grained (2-10 mm) gravel; sand is slightly feldspathic, very slightly glauconitic; gravel consists mainly of re-angulated (broken rounds of) quartz and several types of rock fragments

250-260 As above, except: gravel is finer-grained (2-6 mm) and rounded

260-337 From 260-337 (T. D.), the sequence consists predominantly of tan and light-gray sandy gravels with little or no clay. Gravel-size material consists in large part of broken rounds, indicating the presence of numerous cobble or boulder beds; sand fractions are mainly coarse- to very coarse-grained and moderately sorted to well-sorted; downward, feldspar becomes much more prominent in both fractions, and glauconite virtually disappears; fragments of sand-free pale-green clay are present in the following intervals: 280-290', 300-310', 330-337'.

## GEOLOGIC SUMMARY

| Depth in feet | Rock Unit | Age |
|---|---|---|
| 0-60' | Columbia Group | Post Miocene |
| 60-150' | Calvert Formation | Miocene |
| 150-180' | Nanjemoy Formation | Eocene |
| 180-235' | Mattaponi Formation | Paleocene - Late Cretaceous |
| 235-337' | Patuxent Formation | Early Cretaceous |

Virginia Division of Mineral Resources
Robert H. Teifke - Geologist
February 8, 1973