

VDMR Well No. 2099  
County: Richmond

Well: KQ-1  
Property: Julian Harks  
Driller: Norfolk and Western Railway  
Location: 1.5 miles S of Havelock;  
76° 50' 00" W, 38° 00' 00" N  
Elevation: 30 feet  
Total Depth: 124.5 feet  
Started drilling: November, 1966. Completed drilling: November, 1966  
Sample description by: R. H. Teifke, Virginia Division of Mineral  
Resources, October, 1968

GEOLOGIC LOG\*

Depth in  
feet

COLUMBIA GROUP (0-50')

- |       |  |
|-------|--|
| 0-10  | Sand and gravel — gray, clean; very coarse-grained sand and granule gravel, with a few small pebbles up to 10 mm; angular to subangular; abundant blue quartz and decomposed feldspar; chert, quartzite, and other rock fragments common, but subordinate  |
| 10-20 | Sand and gravel — sparse binder of orange-brown clay; 55% medium- to very coarse-grained, poorly sorted, angular sand; 40% fine-grained (2-8 mm), angular to rounded gravel; abundant blue quartz and decomposed feldspar; subordinate chert and quartzite fragments concentrated in coarser grades; accessory magnetite; trace of muscovite |
| 20-30 | Gravel — sparse binder of orange-brown clay, fine-grained (2-8 mm), well-sorted, angular to rounded; abundant blue quartz and decomposed feldspar; stable rock fragments (quartzites and cherts) common; trace of fine-grained glauconite  |

- 30-40 No Sample
- 40 Sand and gravel — binder of orange-brown clay; 15% granules and very small pebbles; 75% fine- to very coarse-grained, poorly sorted, angular to subangular, quartzo-feldspathic sand; abundant magnetite; traces of muscovite, garnet, and epidote
- 50 Gravel — orange-brown, slightly clayey, grades into very coarse-grained sand; fine-grained (2-8 mm), well-sorted, angular to rounded; slightly to moderately feldspathic; chert and quartzite fragments are common; abundant ferricrete

CALVERT FORMATION (60-124.5')

- 60 Sand — binder of tan to brown clay, lignitic; very fine- to medium-grained, fairly well-sorted, angular; clear and iron-stained quartz, magnetite and medium-green, oxidized glauconite are common; trace of muscovite
- 70 Clay — pale yellowish-gray, trace of fine- to very fine-grained, well-sorted, angular quartz sand; trace of glauconite; a few plant fragments; gypsum common; diatomaceous
- 80 " pale greenish-gray, moderately sandy; gypsum very common
- 90 " pale greenish-gray, slightly sandy; gypsum common; foraminifers common (Nonion)
- 100 " pale greenish-gray, trace of sand; trace of gypsum; a few foraminifers
- 110 Clay — pale greenish-gray, slightly sandy; sand is fine-grained, well-sorted, angular; clear quartz, with 10% small phosphatic bone and shell fragments; slightly gypsiferous; moderately diatomaceous; foraminifers common
- 118 " pale grayish-brown, very slightly sandy

- 118-121 Sand — brownish-gray, moderately clayey; medium- to coarse-grained, fairly well-sorted, subangular to subrounded; clear and pale-green quartz, with 5% bone and shell phosphorite; a few foraminifers (Nonion, Uvigerina)
- 121-124.5 Sand — dark greenish-gray, slightly to moderately clayey, several thin shell zones; medium- to coarse-grained, well-sorted (skewed fine), subangular to subrounded; clear quartz, with 3-5% phosphatic bone fragments; foraminifers (Nonion, Uvigerina, Globigerina) common

\*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	Pleistocene
50-60	No Sample	
60-124.5	Calvert Formation	Middle Miocene

INTERVAL SHEET

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VDMR Well No: 2099

Date rec'd: 1-30-68

Sample Interval: from 0 to: 124.5

PROP: KQ-1

Number of samples: 14

COMP:

Total Depth: 124.5

COUNTY: Richmond

Oil or Gas: Water: Exploratory: X

From-To	From-To	From-To	From-To
0 - 10	-	-	-
10 - 20	-	-	-
20 - 30	-	-	-
40 -	-	-	-
50 -	-	-	-
60 -	-	-	-
70 -	-	-	-
80 -	-	-	-
90 -	-	-	-
100 -	-	-	-
110 -	-	-	-
118 -	-	-	-
118 - 121	-	-	-
121 - 124.5	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

All intervals have both washed and unwashed samples

Dilled 11/66  
Conoco

**CONFIDENTIAL**

R1-T-7  
KQ 1

*Confidential*

Geologic Log  
Strip Log

INTERVAL SHEET

ELEV. : ~ 30'  
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VDMR Well No: **WELL NO. 2099**

Date rec'd: 7/18/67

Sample Interval: from 0 to 124.5

PROP: (MONTROSS (S) - TAPPAHANNOCK (N) SHEETS)  
1.5 Miles S. of

Number of samples: 14

COMP:  Havelock;  
Julian Harks, prop-erty.

Total Depth: 124.5'

COUNTY: Richmond

Oil or Gas: Water: Exploratory:

LINW  
From-To

**CORE**  
From-To

From-To

From-To

