

INTERVAL SHEET

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VDMR Well No: 1516

Date rec'd: 7 March 1966

Sample Interval: from 0 to 949

PROP: City of Norfolk (Lake Prince #2)

Number of samples: 89

COMP: Layne-Arkansas Co.

Total Depth: 949

COUNTY: Nansemond

Oil or Gas: Water: X Exploratory:

From-To	From-To	From-To	From-To
0 - 10	300 - 310	650 - 660	-
10 - 20	310 - 320	660 - 670	-
20 - 30	320 - 330	670 - 680	-
30 - 40	330 - 340	680 - 690	-
40 - 50	340 - 350	690 - 700	-
50 - 60	350 - 360	700 - 710	-
60 - 70	360 - 370	710 - 720	-
70 - 80	370 - 380	720 - 730	-
80 - 90	380 - 390	730 - 740	-
90 - 100	390 - 400	740 - 750	-
100 - 110	400 - 410	750 - 760	-
110 - 120	410 - 420	760 - 770	-
120 - 130	420 - 430	770 - 780	-
130 - 140	430 - 440	780 - 790	-
140 - 150	440 - 450	790 - 800	-
150 - 160	450 - 460	800 - 810	-
160 - 170	460 - 470	810 - 820	-
170 - 180	470 - 480	820 - 830	-
180 - 190	480 - 490	830 - 840	-
190 - 200	490 - 500	840 - 850	-
200 - 210	500 - 510	850 - 860	-
210 - 220	510 - 520	860 - 870	-
220 - 230	520 - 530	870 - 880	-
230 - 240	530 - 540	880 - 890	-
240 - 250	540 - 550	890 - 900	-
250 - 260	550 - 560	900 - 910	-
260 - 270	560 - 570	910 - 920	-
270 - 280	570 - 580	920 - 930	-
280 - 290	580 - 590	930 - 940	-
290 - 300	590 - 650 *	940 - 949	-

All intervals have both washed and unwashed samples! * No samples

OWNER: City of Norfolk #1 (Lake Prince #2)
DRILLER: Layne-Arkansas
COUNTY: Nansemond (Suffolk)

VDMR: 1516
WWCR: 168
TOTAL DEPTH: 949'

GEOLOGIC LOG

Depth
in feet

COLUMBIA GROUP (0-40')

- 0-10 Sand — buff, very slightly argillaceous; fine- to medium-grained, well-sorted, subangular; small amounts white, decomposed feldspar, and magnetite
- 10-20 Sand — gray, very argillaceous, bioclastic; fine-grained, well-sorted, angular to subangular; traces of muscovite, hornblende, and magnetite; abundant, finely divided shell debris, echinoid spines, foraminifers, and ostracods (40-50% of sample); a few coarse shell fragments
- 20-30 Sand — brown, slightly argillaceous; medium- to very-coarse-grained, fairly well sorted, subangular to subrounded; small amounts magnetite, white, decomposed feldspar, and muscovite
- 30-40 Sand — orange-brown, moderately argillaceous; fine- to coarse-grained, moderately sorted, angular to subrounded; small amount of white, decomposed feldspar, and a trace of magnetite

YORKTOWN FORMATION (40-250')

- 40-50 (1) Clay — brightly mottled in red, orange, yellow, white, purple, and purplish-gray, moderately coherent, sandy, non-fossiliferous
- (2) Sand — gray, very argillaceous, bioclastic; fine-grained, well-sorted, angular to subangular; traces of muscovite, hornblende and magnetite; abundance of finely divided shell debris; scattered, coarser fragments of pelecypods and gastropods, and abundant echinoid spines and plates; foraminifers and ostracods moderately abundant (total shell 25-30% of sample)
- 50-60 Sand — gray, very argillaceous; fine-grained, well-sorted, angular to subangular; traces of muscovite, glauconite, hornblende; moderate abundance of finely divided shell debris, including many echinoid spines; foraminifers moderately abundant; a few ostracods

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- 60-70 Sand — gray, very argillaceous; fine-grained, well-sorted, angular to subangular; traces of muscovite, glauconite, hornblende; moderate abundance of finely divided shell debris, including many echinoid spines; foraminifers moderately abundant; a few ostracods
- 70-80 Clay — gray; sandy, abundant fine shell and foraminifers; traces of muscovite and glauconite
- 80-90 Sand — gray, very argillaceous; fine- to medium-grained, fairly well sorted; 60-65% clear, angular to subangular quartz, and 35-40% fresh glauconite; trace of muscovite; moderately fossiliferous: foraminifera, echinoid spines, ostracods, and a few molluscan shell fragments
- 90-100 " 10-15% glauconite
- 100-110 " about 5% glauconite; less fossiliferous
- 110-120 Sand — gray, very argillaceous; fine-grained, well-sorted; 60-70% clear, angular quartz, and 30-40% fresh to slightly oxidized glauconite; a few foraminifera and echinoid spines, and about 5% coarse pelecypod shell fragments
- 120-130 " fine- to medium-grained, about 10% fresh glauconite
- 130-140 " fine- to medium-grained, about 10% fresh glauconite, about 20% coarse pelecypod shell fragments
- 140-150 Sand — gray, argillaceous; fine- to medium-grained, well-sorted, subangular to subrounded; about 20% fresh glauconite; 10-15% shell fragments of pelecypods, gastropods, scaphopods, coral, echinoid spines, and shark teeth; a few foraminifers and ostracods
- 150-160 "
- 160-170 Sand — gray, with greenish cast, argillaceous; fine- to medium-grained, well-sorted; 80-85% clear, angular quartz, and 15-20% fresh glauconite; scattered plates of brown phosphorite and sheares of acicular aragonite; 10-15% shell fragments of pelecypods, echinoid spines, and gastropods; a few foraminifers
- 170-180 "

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- 180-190 Sand — gray, with greenish cast, argillaceous; fine- to medium-grained, well-sorted; 80-85% clear, angular quartz, and 15-20% fresh glauconite; scattered plates of brown phosphorite and sheares of acicular aragonite; 10-15% shell fragments of pelecypods, echinoid spines, and gastropods; a few foraminifers
- 190-200 " about 5% shell fragments
- 200-210 " "
- 210-220 " about 5% shell fragments; about 10% glauconite
- 220-230 Sand — greenish-gray, slightly flauconitic, moderately clayey, fine- to very fine-grained
- 230-240 "
- 240-250 "

CALVERT FORMATION (250-280⁺)

- 250-260 Sand — dark-gray, slightly argillaceous; medium-grained, well-sorted, subangular to subrounded; clear quartz sand; scattered grains of glauconite; 3-5% shell fragments of pelecypods, echinoid spines, fish teeth and bone fragments; 1-3% phosphorite; some ostracods and large foraminifers
- 260-270 Sand — grayish-brown, slightly argillaceous; coarse- to very-coarse-grained, well-sorted, subrounded; limpid quartz with small amounts of shell and phosphorite
- 270-280 "

MATTAPONI FORMATION (280-350⁺)

- 280-290 Sand — gray, with greenish cast, moderately argillaceous; medium- to coarse-grained, fairly well sorted; 50-60% clear, subangular to rounded quartz, and 40-50% brown (oxidized) glauconite; small amounts of pyrite and phosphorite; scattered shell fragments, echinoid spines, and foraminifers
- 290-300 "

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300-310 Sand — "salt- and -pepper", clean; fine- to coarse-grained, fairly well sorted; 60-70% dark-green to brown glauconite (various stages of oxidation), and 30-40% clear to yellowish, subangular to rounded quartz (quartz is finer than glauconite); small amounts of pyrite, phosphorite; trace of shell fragments

310-320 "

320-330 Sand — gray, moderately argillaceous; fine- to coarse-grained, moderately sorted; 40-50% green and brown glauconite, and 50-60% angular to rounded, clear quartz; 2-5% shell fragments, some of it phosphatic

330-340 "

340-350 " coarse-grained, fairly well-sorted

TUSCALOOSA FORMATION (350-410')

350-360 Sand — black, clean; medium-grained, well-sorted; 75% fresh glauconite, and 25% clear, subangular to subrounded quartz; scattered shell fragments, fish teeth, phosphatic plates and nodular masses, and foraminifers; quartz is concentrated in finer fractions

360-370 Sand — dark-gray, very slightly argillaceous; medium- to coarse grained, well-sorted; 60-70% fresh glauconite, and 30-40% angular to subrounded quartz; a few shell fragments, fish teeth, and foraminifers

370-380 " argillaceous

380-390 " "

390-400 Sand — brownish-gray, argillaceous; fine- to coarse-grained, rather poorly sorted; 60-70% angular to subangular clear quartz, and 30-40% dark-green, to light-green, to brown glauconite; abundant muscovite; small amounts of pyrite, phosphorite, and pink garnet; scattered pelecypod shell fragments

400-410 "

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PATUXENT FORMATION (410-949')

410-420	Sand — light-gray, trace of clay; coarse- to very-coarse-grained, well-sorted, subangular to subrounded; arkosic (fresh, gray and white potassic feldspar); 2-4% green to brown glauconite; a few pelecypod shell fragments
420-430	"
430-440	Sand — light-gray, trace of clay; coarse- to very-coarse-grained, well-sorted, subangular to subrounded; moderately arkosic; a few grains of glauconite; trace of garnet
440-450	"
450-460	"
460-470	"
470-480	"
480-490	"
490-500	"
500-510	"
510-520	"
520-530	"
530-540	"
540-550	"
550-560	"
560-570	"
570-580	" slightly arkosic
580-590	Sand — brownish-gray, argillaceous; medium- to very-coarse-grained, moderately sorted, subangular to subrounded; arkosic; 2-5% fresh glauconite; small amounts of muscovite, garnet, and phosphorite
590-650	No sample

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- 650-660 Sand — gray, slightly to moderately argillaceous; coarse- to very-coarse-grained, well-sorted, subrounded; moderately arkosic; about 1% glauconite; trace of muscovite
- 660-670 " moderately argillaceous (brown and gray clay)
- 670-680 " slightly argillaceous
- 680-690 Sand — gray, slightly argillaceous; medium-to very-coarse-grained, moderately sorted, subangular to subrounded; arkosic; about 1% glauconite; traces of muscovite and garnet
- 690-700 "
- 700-710 "
- 710-720 "
- 720-730 "
- 730-740 Sand — gray, clean; coarse- to very-coarse-grained, well-sorted, subangular to subrounded; arkosic; a few grains of glauconite; trace of muscovite
- 740-750 "
- 750-760 Sand — gray, moderately argillaceous; medium- to very-coarse-grained, fairly well sorted, subangular to subrounded; moderately arkosic (abundant white kaolinitic clay, presumably alteration product of potassic feldspar); small amount of glauconite; trace of shell and echinoid spines
- 760-770 " coarser and more arkosic
- 770-780 Sand — gray, slightly argillaceous; medium- to very-coarse-grained, fairly well sorted; subrounded; arkosic; very slightly glauconitic; traces of muscovite and pyrite; trace of shell
- 780-790 "
- 790-800 Sand — gray, slightly argillaceous; medium- to coarse-grained, fairly well sorted, subangular to subrounded; arkosic; small amount of glauconite; traces of garnet, muscovite, and shell fragment
- 800-810 "

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- 810-820 Sand — gray, very slightly argillaceous; coarse- to very-coarse-grained, well-sorted (skewed coarse), subrounded; arkosic; scattered grains of glauconite, muscovite, garnet, and kyanite
- 820-830 "
- 830-840 "
- 840-850 Sand — gray, slightly argillaceous; medium- to very-coarse-grained, moderately sorted, subangular to subrounded; arkosic; slightly micaceous (muscovite); scattered grains of glauconite and limonite after glauconite; traces of garnet, kyanite, and shell fragments
- 850-860 "
- 860-870 "
- 870-880 "
- 880-890 "
- 890-900 Sand — gray, slightly argillaceous; coarse- to very-coarse-grained, well-sorted, subangular to subrounded; arkosic; small amount of glauconite; traces of muscovite and shell fragments
- 900-910 "
- 910-920 "
- 920-930 "
- 930-940 Sand — gray, slightly argillaceous; a few very small pebbles; medium- to very-coarse-grained, moderately sorted, subangular to subrounded; moderately arkosic; small amounts of glauconite and limonite after glauconite; traces of muscovite, shell fragments, and echinoid spines
- 940-949 "

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GEOLOGIC SUMMARY

	<u>ROCK UNIT</u>	<u>AGE</u>
0-40	Columbia Group	Pleistocene
40-250	Yorktown Formation	Late Miocene
250-280	Calvert Formation	Middle Miocene
280-350	Mattaponi Formation	Paleocene
350-410	Tuscaloosa Formation	Late Cretaceous
410-949	Patuxent Formation	Early Cretaceous

Microfossil slides were prepared for the intervals
250-260', 280-300', and 360-400'.

Virginia Division of Mineral Resources
Robert H. Teifke, Geologist
January 31, 1968