

INTERVAL SHEET

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VDMR Well No.: 590

Date 10-31-61

Sample Interval: from 0 to 384

PROP: Liberty Christian Church
(Ellerson)

Total depth 384

COMP: Mitchell's

Oil Gas Water X Exploratory

COUNTY: Hanover

Cuttings X Core Other

From-To	From-To	From-To	WASHED SAMPLES From-To	From-To
-	0-10	-	-	-
-	10-20	-	-	-
-	20-30	-	Complete set of sampled intervals.	-
-	30-40	-	-	-
-	40-50	-	-	-
-	50-60	-	-	-
-	60-70	-	-	-
-	70-80	-	-	-
-	80-90	-	-	-
-	90- <u>100</u>	-	-	-
-	100-110	-	-	-
-	110-120	-	-	-
-	120-130	-	-	-
-	130-140	-	-	-
-	140-150	-	-	-
-	150-160	-	-	-
-	160-170	-	-	-
-	170-180	-	-	-
-	180-190	-	-	-
-	190- <u>200</u>	-	-	-
-	200-210	-	-	-
-	210-220	-	-	-
-	220-230	-	-	-
-	230-240	-	-	-
-	240-279	-	-	-
-	279- <u>310</u>	-	-	-
-	310-336	-	-	-
-	336-360	-	-	-
-	360-384	-	-	-
-	-	-	-	-

OWNER: Liberty Christian Church
(Ellerson)
DRILLER: Mitchell's
COUNTY: Hanover

W#: 590
C#: 20
TOTAL DEPTH: 384'
QUAD: Seven Pines

GEOLOGIC LOG

Depth
(feet)

- 0 - 10 Sand - dark yellowish orange; slightly stained; moderate clay; fine to medium grained; subangular to subrounded; moderately well sorted; quartz; feldspar; few opaques; few grains of glauconite.
- 10 - 20 Sand - dark yellowish orange; slightly clayey; fine to medium grained, some coarse grains, few granules; subangular to subrounded; moderately sorted; quartz; feldspar; some opaques.
- 20 - 30 As above plus few grains of glauconite.
- 30 - 40 As above plus some slightly stained grains.
- 40 - 50 Sand - moderate brown; 60% extremely heavily stained grains; medium to very coarse grained, some granules; subangular to subrounded; moderately sorted; quartz; feldspar; few opaques; few grains of glauconite; few siltstone fragments; few fragments of ferricrete.
- 50 - 60 As above except slightly clayey; some fine grains.
- 60 - 70 Sand - olive light gray; moderate clay - olive light gray, dark gray; fine grained, some granules; subangular to subrounded; well sorted; quartz; some feldspar (granules); some muscovite; few black phosphatic fragments.
- 70 - 80 As above except abundant clay; no pebbles.
- 80 - 90 Sand - olive light gray; abundant clay; fine grained; subangular; well sorted; quartz; some muscovite; few grains of glauconite; few flakes of biotite.
- 90 - 100 Sand - olive light gray; moderate clay; very fine grained; subangular; well sorted; quartz; some muscovite; few black phosphatic fragments.
- 100 - 110 Sand - light olive gray; abundant clay; very fine to fine grained; subangular; well sorted; quartz; some black phosphatic material; some muscovite; few grains of feldspar; few shell fragments.
- 110 - 120 Sand - olive light gray; moderate clay; very fine to medium grained; subangular to subrounded; moderately sorted; quartz; some black phosphatic material; some shell fragments.
- 120 - 130 As above except medium grained; few grains of glauconite.

Depth
(feet)

- 130 - 140 Sand -- olive gray; moderate clay; fine grained, some medium grains; subangular to rounded; moderately well sorted; quartz; 35% glauconite; 3% muscovite.
- 140 - 150 Sand -- olive light gray; moderate clay; fine to medium grained; subangular to rounded; moderately well sorted; quartz; 50% glauconite; some muscovite; few shell fragments; few black phosphatic fragments; few echinoid spines.
- 150 - 160 As above except 25% glauconite; 3% muscovite.
- 160 - 170 As above except 45% glauconite; no echinoid spines; ostracode.
- 170 - 180 Sand -- olive light gray; moderate clay; fine to medium grained; subangular to rounded; moderately well sorted; quartz; 30% glauconite (green, brown); 5% muscovite; few black phosphatic fragments.
- 180 - 190 Sand -- very light gray; abundant clay; fine to medium grained; subangular to subrounded; moderately well sorted; quartz; 10% glauconite; some muscovite; few echinoid spines; few shell fragments.
- 190 - 200 Clay -- very light gray; moderate sand; fine to medium grained; subangular to rounded; moderately well sorted; quartz; glauconite 20% of sand sized fraction; some muscovite; few grains of feldspar; few echinoid spines.
- 200 - 210 Sand -- olive gray; moderate clay - olive gray, moderate orange pink; very fine to fine grained; subangular to rounded; well sorted; quartz; 15% glauconite; 3% shell fragments; 2% muscovite; forams (inc. Robulus); ostracode.
- 210 - 220 Sand -- olive gray; moderate clay; very fine grained; subangular to rounded; well sorted; quartz; 10% glauconite; 5% muscovite; some shell fragments; few black phosphatic fragments; forams (inc. Robulus and Nodosaria).
- 220 - 230 Sand -- olive gray; moderate clay; fine grained, some medium grains; subangular to rounded; moderately well sorted; 25% glauconite; 15% shell fragments; some muscovite.
- 230 - 240 Granules -- off white; moderate very coarse grained sand, 10% pebbles; subrounded; moderately well sorted; quartz; feldspar; few flakes of muscovite.
- 240 - 279 Sand -- off white; slightly clayey; medium to very coarse grained, 5% granules, few pebbles; subrounded; moderately sorted; quartz; feldspar; some glauconite; muscovite.
- 279 - 310 As above except moderate clay; few granules.

OWNER: Liberty Christian Church

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W#: 590

Depth
(feet)

- 310 - 336 Sand -- off white; some slightly stained grains; medium to coarse grained; subrounded; well sorted; quartz; feldspar; some glauconite; some muscovite; few grains of garnet.
- 336 - 360 Sand -- light olive gray; moderate clay; medium grained, some fine grains, 5% granules; subangular to subrounded; moderately well sorted; quartz; feldspar; some glauconite; some muscovite.
- 360 - 384 Sand -- off white; very coarse grained, 7% granules; subrounded; well sorted; quartz; feldspar; few grains of glauconite.

Logged by: Michael T. Currie
Dec. 27, 1978

GEOLOGIC SUMMARY

<u>Depth (feet)</u>	<u>Thickness (feet)</u>	<u>Rock Unit</u>	<u>Time Rock Unit</u>
0-60	60	Columbia Group	Pleistocene
60-130	70	Calvert Formation	Miocene-Eocene
130-190	60	Nanjemoy Formation	Eocene
190-210	20	Marlboro Clay	Eocene
210-230	20	Mattaponi Formation	Eocene-Cretaceous
230-284	54	Patuxent Formation	Cretaceous

Virginia Division of Mineral Resources
David A. Hubbard, Jr., Geologist
December 28, 1978

Reproduced by Jesse Standbridge – March 7, 2011

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230-384	54	Pataxent Formation	Cretaceous

VIRGINIA DIVISION OF MINERAL RESOURCES

David A. Hubbard, Jr., Geologist

December 28, 1978